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ABSTRACT

This physical education and health education curriculum guide, specializing in the healthy heart, is designed for use by both classroom teachers and physical education teachers. Part 1 outlines a physical education curriculum for children in the first grade. Included are a variety of physical education program activities which focus on improving cardiovascular endurance, enhancing basic motor skill development, and increasing levels of strength, flexibility, and balance. Thirty-two activity sessions which feature high energy activity are outlined. Each lesson is presented in three phases: preparing students for the lesson, getting students to work for a continuous 15 to 20 minute period, and reinforcing the concepts presented and providing a cooling down period. Part 2 outlines a health education curriculum focusing on: (1) cardiovascular system; (2) healthy heart exercise; (3) prevention of cardiovascular disease; (4) keeping a hearty heart; (5) help for the hurting heart; and (6) hearty heart nutrition. A report describing research that preceded the development of this Hearty Heart Project is presented in the final section. (JD)

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PROJECT HEARTY HEART
A CARDIOVASCULAR FITNESS CURRICULUM FOR
FIRST GRADE CHILDREN

Project Hearty Heart was Supported by a
Faculty Research Grant Provided by Eastern Kentucky University

- Part I: Physical Education Curriculum
Part II: Health Education Curriculum
Part III: Project Hearty Heart: A Research Report

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PREFACE

The material in this manuscript appears in three parts:

Part I: Physical Education Curriculum

Part II: Health Education Curriculum

Part III: Project Hearty Heart: A Research Report

The curricula are designed to be used by the classroom teacher and/or the physical education specialist. The Health Education and Physical Education Curricula are designed for complimentary instruction in the classroom and the gymnasium area. The teacher should review the materials of both courses before proceeding with instruction.

The report of the field test in Part III contains procedural information and results which may be useful in establishing expectations for first grade children.

PART I

PROJECT HEARTY HEART

PHYSICAL EDUCATION CURRICULUM

by

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INTRODUCTION

This physical education curriculum is designed for first grade children and is to be presented in 32 activity sessions lasting 30 minutes each. Lessons should be taught twice a week. The teaching style recommended is a discovery style with challenges being posed and then children helped to find their own way of solving the problems. A variety of physical education program activities are included which focus on activities to improve cardiovascular endurance, enhance basic motor skill development and increase levels of strength, flexibility, and balance. The specific task of the teacher is to advocate a life style to encourage cardiovascular fitness and health related practices for young children.

Each lesson is presented in three phases:

1. Introductory -- to get children psychologically and physiologically ready for the lesson material, to get their bodies warm for vigorous movement and to get them interested in vigorous play.
2. Development -- to get children working with high energy activity for a continuous fifteen to twenty minute period. This phase will also encourage children to pace themselves and work for longer and longer periods in their target heart rate zone.
3. Culmination -- to reinforce the concepts presented and also provide a cool down phase. This brief period of five to six minutes will be a time of skill learning with some attention devoted to improving strength, flexibility, and balance.

High energy activity is a key concept of the program with efforts directed toward encouraging children to have a more active play life. The distinguishing differences between this program and other physical education programs for first grade children lies in the focus on high energy activities and the concern for developing a healthy hearty heart. Children will be encouraged to participate daily in vigorous physical activity for their total development and to develop positive attitudes toward active play.

Long-range and specific goals which teachers may hold in working toward development of children's fitness are listed on the following pages.

SOME LONG-RANGE GOALS FOR DEVELOPING CHILDREN'S FITNESS

1. To show evidence of good cardiovascular fitness by performing aerobic (continuous) and anaerobic (intermittent) exercise.
2. To develop strength and muscular endurance for daily living conditions (work and play).
3. To develop flexibility for more efficient movement and for preventing muscular injuries.
4. To understand why physical activity and exercise are important as well as how to perform various exercises and physical activities.
5. To enjoy the mental health benefits of activity.
6. To differentiate between minimal and optimal amounts of physical activity for developing physical fitness.
7. To understand the specific aspects of children's fitness and their importance to good health.
8. To achieve good skill-related fitness to improve one's ability to work efficiently.
9. To find physical activities that can be enjoyed for a lifetime.
10. To understand and practice good Body Mechanics Principles.
11. To understand what a healthy heart is and to know what a hurting heart is.
12. To use good exercise and diet habits to maintain desirable body fat content and to gain lean body weight.
13. To know and practice ways of avoiding and adapting to stress, emotional factors and tension.
14. To learn new physical education activities that focus on high energy expenditure.
15. To involve the child's family in the selection of and participation in play activities and life habits which promote cardiovascular fitness.
16. To attain a positive self-concept and positive attitudes toward physical activity.

SOME SPECIFIC SHORT TERM GOALS FOR DEVELOPING CHILDREN'S FITNESS

I. Cardiorespiratory Endurance Activity

1. To increase running time gradually until a mile can be run in 15 minutes or less (4 times).
2. To accomplish a fast walking one half mile in 8 minutes or less (8 times).
3. To increase continuous vigorous dancing time to a period of ten minutes.
4. To combine locomotor movements for a 15 minute vigorous work-out (4 times).
5. To use small apparatus as tires, hoops, low beams, benches, and other apparatus for continuous movement activity for 20 minutes (4 times).
6. To do rope activities (running and jumping) for 15 minutes (4 times).
7. To use locomotor and flexibility movements with the stretch rope and parachute for a continuous 15 minute period (4 times).
8. To manipulate objects (balls, sticks, etc.) for a 15 minute continuous movement session (4 times).
9. To accomplish 16 outdoor outings which foster cardiovascular development (hiking, jogging, climbing stairs, bicycling, fun run [family], soccer fun, run across Kentucky, join the 100 club [certificate]).

II. Motor Function

A. Skill

1. To practice basic locomotor movements in each activity session.
2. To get better handling balls and other objects and to increase striking and kicking accuracy and distance.
3. To be comfortable making dances with and without props.
4. To find new ways to do structured rhythms.
5. To explore gymnastic movement by balancing, stepping, rolling, springing with and without apparatus.
6. To show basic skill accomplishment by playing simple active games.

B. Strength

1. To increase the distance of doing animal walks.
2. To increase the number of times and the difficulty of various exercises.
3. To work on different apparatus as muscles get stronger.

C. Flexibility

1. To increase the range of movement by accomplishing designated stunts and exercises.
2. To extend the reach in different body postures.
3. To improve in the ability to get a full stretch from exercise and rhythmical activities.

D. Balance

1. To show improvement in balancing ability on the floor, on the beam and other apparatus, and in the balancing of objects.
2. To hold a balance position for a longer period of time with and without eyes closed.

PROJECT HEARTY HEART

Physical Education Curriculum

I. Cardiovascular Fitness and Endurance

A. Non-Equipment Activity

1. Walking ways
2. Running ways
3. Dancing ways
4. Jumping ways
5. Gymnastic ways
6. Game ways

B. Equipment Aided Activity

1. Bicycling
2. Skating
3. Small apparatus: balls, hoops, ropes, sticks, parachutes, carpet squares, tires, etc.
4. Large apparatus: boxes, benches, mats, beams, ladders, etc.

II. Motor Function

A. Basic Motor Skills

1. Locomotor movements
 - a. Walk, run, jump, gallop, slide, hop, leap, skip and combinations
2. Manipulative skills
 - a. Ball and object handling
 - b. Striking
 - c. Kicking
3. Body management skills
 - a. Children's dance
 - (1) Creative dance (shape making, position dances, children's solution to stated tasks, parachute and stretch rope sequences, scarves, etc.)
 - (2) Structured dances (Seven Jumps, Patty Cake Polks, Lobby Loo, A Hunting We Will Go, Rig-a-jig-jig, Jump Jim Jo, La Raspa, Crested Hen)
 - b. Children's gymnastics
 - (1) Discovery (balance ways, stepping ways, rolling ways, spring-like ways, flight)
 - (2) Exploring large apparatus (beams, benches, bars, climbing apparatus, bouncing apparatus)
 - (3) Using hand apparatus (ropes, hoops, balls, sticks, etc.)
 - (4) Simple partner work (down and up, over and under, match me, push and pull, jump like me, combatives, balancing)
 - c. Children's active games
 - (1) Chasing and fleeing games (fireman, fox in the morning, midnight, man from Mars)
 - (2) Cooperative games (jaws, help my partner, making letters and shapes, sound effect games, musical hoops, musical hugs)
 - (3) Ball and object games
 - (4) Active tag games (one-on-one, one-on-three, flag tag, chain tag)

B. Strength Activities

1. Animal walks
 - a. Crab, seal, frog, bear, lame dog, mule kick, birds, horse.
2. Specific exercises
 - a. Front leaning rest positions
 - b. Abdominal exercises
 - c. Jumps
 - d. Shoulder girdle push-a-ways
 - e. Sprinter exercises
3. Apparatus activities for strengthening
 - a. Bar stunts
 - b. Bench work
 - c. Beam routines
 - d. Vaulting
 - e. Climbing activities
 - f. Parachute events
 - g. Partner work
 - h. Pretend isometrics

C. Flexibility Development

1. Stretching exercises
 - a. Dance techniques (dinosaur, sailor, licorice stick, partner row boats, rubber bands, etc.)
 - b. Challenges (children's own exploration)
 - c. Animal moves (mad cat, measuring worm)
 - d. Body positions (roly poly, wicket walk)
 - e. Double bubble exercises (toe touch, high knee, straddle touch, sideward bends)
 - f. Rhythms (row your boat, toes to nose, head and shoulders, creative moves)

D. Balance

1. Floor work
2. Beam work
3. Balancing objects (bean bags, sticks)

SCHEDULE OF PHYSICAL EDUCATION SESSIONS

<u>Lesson</u>	<u>Activity Focus</u>
1	Locomotor - Animal Stunts
2	Small Apparatus: Tires/Beat Boards
3	Ropes - Dance
4	Fast Walk - Gymnastics
5	Stretch Rope - Parachute
6	Balls - Sticks - Games
7	Locomotor - Animal Stunts
8	Run a timed mile
9	Fast Walk - Gymnastics
10	Small Apparatus: Hoops/Shapes
11	Ropes - Dance
12	Stretch Rope - Parachute
13	Fast Walk - Gymnastics
14	Locomotor - Animal Stunts
15	Run a timed mile
16	Balls - Sticks - Games
17	Fast Walk - Gymnastics
18	Locomotor - Animal Stunts
19	Small Apparatus: Beams/Spots
20	Fast Walk - Gymnastics
21	Run a timed mile
22	Ropes - Dance
23	Stretch Rope - Parachute
24	Fast Walk - Gymnastics
25	Balls - Sticks - Games
26	Small Apparatus: Benches/Carpet Squares
27	Ropes - Dance
28	Fast Walk - Gymnastics
29	Run a timed mile
30	Stretch Rope - Parachute
31	Fast Walk - Gymnastics
32	Balls - Sticks - Games
Post-testing	Run a timed mile

A teacher may choose to follow a different order in presenting these lessons, for example the four locomotor-animal stunts lessons or any of the other series may be taught consecutively. The timed mile sessions may still be interspersed throughout the unit as a means of evaluating children's cardiovascular fitness.

PROJECT HEARTY HEART

Questions: How will exercise help my heart?
How can I work in my target zone?
How much exercise do I need?

1. Warm up activity

- a. Easy run two laps around the gym (about 220 yards). - - -
- b. Stretch your back, tummy, legs, etc. - - -
- c. Run in place lifting knees high for one minute. - - -
- d. In a designated space show some walking ways. - - -

(Children make use of all the space avoiding bumping each other, while moving into the open spaces and finding different ways to walk. Some ways could include on tip-toes, on heels, on sides of feet, forward, backward, slowly, sideways, making a circle or a square. The designated space needs to be carefully defined and clearly marked so children are helped to know where to work.)

2. Cardiovascular development

- a. Pace run for five minutes counting the number of times you run the length of the gym. - - -
- b. Count pulse for 10 seconds. Are you in your target zone? Do you need to speed up or slow down?
- c. Run an obstacle course for 10 minutes continuously. - - -
Check pulse once to see if the desired target zone is attained.

3. Culmination

- a. Walk four ways in the designated space for one minute. - - -
Children choose own combinations and develop a pattern.
- b. Show some animal walks as bear, camel, lame dog, measuring worm, crab, seal, and frog. - - -
- c. Take weight on the hands only for a brief time as in the mule kick. - - -
- d. Briefly raise the questions: How does exercise help my heart? Did I work hard enough to get in the target zone? How much exercise do I need?
- e. Check pulse and return to school room.

PROJECT HEARTY HEART

Questions: How can I work in my target zone while using small apparatus?
What are some fun ways to work hard?

1. Warm up activity
 - a. Run anywhere in the designated space for one minute. - - -
 - b. Find some new ways to stretch back, arms, legs. - - -
 - c. Run very fast in the space for 30 seconds, walk around 30 seconds. Repeat 3 times. - - - (Emphasize working in the defined space.)
2. Cardiovascular development
 - a. For fifteen minutes respond to these continuous challenges with hoops placed randomly around the play space. (Enough hoops are placed to correspond to the number of children. Tires may also be used.)
 - . Run around all the hoops without touching a hoop or another person.
 - . Run and jump over every time you come to a free hoop.
 - . Find different ways to jump over the hoops as you run about.
 - . Put one foot in each hoop as you run about. Both feet.
 - . Go into the air over a hoop and make different shapes.
 - . How fast can you go around all the hoops? Now slowly, pacing yourself.
 - . See if you can make your knees go high while running.
 - . Can you travel in and out of the hoops using only one foot? With two feet?
 - . Show me some galloping ways about the hoops? Who can skip about?
 - . Touch every hoop with one foot before I say stop; with two feet.
 - b. After 15 minutes count pulse for 10 seconds to see if target zone is attained.
3. Culmination
 - a. What kind of ways can you bounce up and down inside your hoop? - - -
 - b. Can you bounce high into the air finding safe ways to land? - - -
 - c. Try bouncing on the beat boards (reuther boards or bouncing boards) and find different ways to leave the board. - - -
 - d. See if you can run off the beat board, go high in the air and land safely. - - -
 - e. Make different shapes in the air before landing safely on the mat. - - -
 - f. Try this simple sequence: approach, go into the air, make a shape, land. - - -
 - g. Respond to questions: What did you do that was hard? What fun things did you discover? How could you practice these ideas at home? What does it mean to pace yourself?
 - h. Count pulse and note if you are in your target zone. - - -

PROJECT HEARTY HEART

Questions: What are some fun ways to stretch?
What are some dancing ways to test my heart?
Will rope skipping help me to have quick feet?

1. Warm up activity

- a. Find the quickest way you know to move your feet for one minute. - - -
- b. What other ways can you make your feet go? - - -
Can they sometimes work close together and sometimes far apart?
- c. Show me some one foot ways to move. - - -
- d. How can you move with both feet touching the floor at the same time? - - -
- e. Let's try some fun ways to stretch? - - -
 - . You are a sailor on a big sailing ship and you have to climb lots of ladders to put up the sails. Hand over hand reaching a little higher each time, feet flat on the floor but really stretching for 8-10 counts. Now flop over and hang stretching hands to floor. You can't bend your knees because you've been working in the sun all day and your knees are sunburned. Again stretch high . . . 8-9-10 and flop forward bending at the waist only. Repeat 2 more times.
 - . We've stretched the backs of our legs and up through our middle now let's be dinosaurs - - - lean over and place one hand flat on floor then the other, then place one foot flat with knee stretched and then the other foot - smack - smack - stomp - stomp. Now bounce both feet together four times keeping hips high and knees straight. Again to the rhythm of smack - smack - stomp - stomp and bounce 2-3-4.
 - . With a peppermint or licorice stick between your knees let's pretend we are nibbling a bite as we bend forward without bending knees. There, we must bend further forward because we've already nibbled away part of it. - - - It's ok to say ouch. Let's bend, ouch! ouch! ouch! Good stretch!

(Ideas from Anne Barlin's, Teaching Your Wings To Fly.)

2. Cardiovascular development

- a. Each child runs to the end of the gym, gets a rope and returns to a chosen space and places the rope on the floor. Children explore these problems: - - -
 - . How many different ways can you quickly go around your rope?
 - . How can you cross over different ways (jump - hop - leap)?
 - . Run in all the space traveling over all the ropes without touching any one or anyone's rope.

- b. To the music (choose a lively record of ten minutes length) find all the dancing ways you can move over the ropes. - - -
 - . Can you hop to the rhythm?
 - . Can you jump to the rhythm?
 - . What other ways?
 - . Can you make a turn as you move about the ropes?
 - . Can you work at a high level sometimes and then at a low level?
 - . Show you can make some movements making your knees work high.
 - . See if you can make lots of back (spine) movements as you travel about.
 - . Try and travel on your all fours as you move to the music.
 - . Are there any other lively ways?
- c. Return the rope to its place and for five minutes show dancing ways to move without the ropes. - - -
 - . The problem is to travel two different directions working sometimes high and sometimes low. Let's add a turn to that problem. - - - Two different directions, high and low levels, a nice turn with arms outstretched. - - - Good work. - - - How can you continue to move to the music solving the problems and at the same time moving more of your body? Try more movements of your head, use arms a different way, can you make your back work different ways? - - - Once more put your movements together and after your second turn sink to the floor and hold very still.

3. Culmination

- a. Check pulse to see if the dancing work was in the target zone.
- b. Do a shape dance, First Steps in Teaching Creative Dance to Children, Mary Joyce, Mayfield Publishing Company, Palo Alto, California, 1980.

PROJECT HEARTY HEART

Questions: Is walking a good hearty heart activity?
Why is it many people do not get enough exercise?
What are some gymnastics ways to move that are good hearty heart activity?

1. Warm up activity

- a. Easy jog until you feel like walking then walk fast until you feel like jogging for about six trips around the area ($\frac{1}{2}$ mile). - - - Be sure and count your trips.
- b. Now that your body is warm let's make a pulse check to see how near the target zone we are.
- c. Stretching exercises:
 - . Toe Touch and High Knee - - - (Child places finger tips or palms on the floor without bending knees, then stands on one leg and clasps the other folded leg against the chest alternating sides.)
 - . The Sprinter - - - (Child assumes a sprint start position with weight forward on hands placed shoulder width apart and one leg stretched backward with the other knee bent and the head slightly elevated. The feet are shifted forward and back in a rapid motion with hands remaining on the floor.)
 - . Repeat the Sailor exercise for upper body stretch.

2. Cardiovascular development

- a. Fast walk as quickly as you can for $\frac{1}{2}$ mile, that will be $6\frac{1}{2}$ laps. The goal is to do that in 8 minutes or less. You will need to count your laps and look at the big clock to see if you can get all your laps done before the buzzer goes off. If you finish before the buzzer your teacher will help you note how quickly you did it. Remember, stay on the course walking as quickly as you can without stopping and count your laps. We will be doing this activity seven more times this year but let's get as good a score as possible this time. - - -
- b. Check pulse to see if target zone was approached.
- c. Two gymnastic stations are arranged at opposite ends of the area (about 30 yards apart). Children do the suggested activity and then run to the opposite area to do that activity. Each child is to continue working for 8 minutes.

Station One

Tumbling Area - A large exercise mat or smaller mats are placed and children find:

- . Rolling ways
- . Springing ways
- . Going high into the air ways
- . Curling and stretching ways

Pictures and other challenges will be provided to keep children working continuously. An adult will be at each station to encourage continuous work.

Station Two

Jumping Area - Swedish box, spotting boxes, sturdy table or other objects of varying heights are placed on mats for children to climb on and come down from practicing safe landing. Three tires for children to jump into, over, on are placed, and two beat board areas with landing mats are also arranged.

3. Culmination

- a. Check pulse to see if the gymnastic work was vigorous enough.
- b. Face a partner and do these mirroring exercises:
 - . Without touching your partner make a stretched balanced shape the same as partners. - - -
 - . Can you make a harder one? - - -
 - . Can you make a harder one with some part of your body really stretched? - - -
 - . While gently touching partner can you find three other ways to make a stretched balanced shape? - - -
- c. By yourself:
 - . Show a balanced stretch shape. - - -
 - . Another. - - - Hold it for four counts.
 - . Another. - - - Hold it for six counts.
 - . Now a very hard one and see if you can hold it for ten counts. - - -
- d. How many were able to reach their target zone by walking fast?
By doing gymnastic movements?
What were some of the ways you discovered that were hard to do and that caused your heart and lungs to get a workout?

PROJECT HEARTY HEART

Questions: Why do you feel better if you exercise?
Do you think exercise helps us to look better?
Can we play better and longer if we get lots of exercise?
How come?

1. Warm up activity

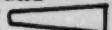
- a. Each person find some spot in the gym to run to and return to me in the blue circle for 10 times. - - - Now choose another spot maybe farther away and you decide how many trips to make to that spot. - - -
- b. Show me some high stretching ways, some medium ways, some low stretching ways. - - -
- c. Let's review some of the stretching exercises we've done before: Toe touch - high knee; Sprinter; Dinosaur; Sailor; Licorice stick.
- d. Let's try two new ones with a partner:
 - . Partner Row Boats*
Sitting back to back, hips touching, legs spread wide and hands resting on your thighs. As your partner breathes in and leans back pressing your body forward you breathe out as his/her body causes you to stretch forward sliding your hands down toward your ankles. Then you slowly straighten up and lean your body back on his back as you inhale. Work very slowly letting the weight of your partner cause you to bend over. Remember, breathe in when you lie back and breathe out as you lean forward. Do it rhythmically, slowly while relaxing and stretching.
 - . Giant Rubber Bands*
Partners kneel on high knees and pretend a giant rubber band is stretched around their shoulders. They lean away from each other keeping their body in a straight line. Then slowly pretend rubber band pulls them slowly forward and they stretch backward again.

2. Cardiovascular development

- a. Stretch Rope Activity - (The stretch rope is a long rope of stretching material that is fastened at the end making a closed loop.) Children grasp rope with both hands about two inches apart and stand an equal distance from each other and step back two giant steps and respond to these challenges:
 - . Stretch up high, then down low. - - -
 - . Touch nose then toes. - - -Repeat until children understand the importance of working in harmony with others. Let's see if we can do some hearty heart work with the rope.
 - . All hold on with the same hand and let's find the different ways we can turn all of us around: Fast walking ways; Running ways; Jumping ways; Hopping ways; Galloping; Sliding; Skipping; Other. - - -

*These two ideas were taken from Anne Barlin's Teaching Your Wings to Fly, Santa Monica, California, Goodyear, 1979.

The direction of travel is varied by going the other direction, sometimes backward, and the size of the locomotor step is varied as small, medium, giant steps. The fast traveling ways are practiced for five minutes.

- . For three minutes the children play jump the brook as they run and jump over the stretched rope held in a long trapezoidal shape (). Those needing the challenge of a greater distance jump off the wide end of the brook, those not so skilled jump over the narrow end. All are encouraged to jump continuously. Three or more rope areas may be arranged or lines could be drawn on the floor for children to go over. Children can be challenged to leap, jump, hop, or find other ways to go over. - - - (Children must all go over the brook in the same direction. They also need to be cautioned to look.)

b. Parachute Activity

- . Children grasp the 'chute with both hands and pull away from each other.
- . Make ripples (small) and (waves) large shaking the 'chute vigorously. - - -
- . Let's locomote with the 'chute making it spin while we run, walk fast, gallop, hop, one foot then the other, jump, slide, skip, first one way then the other working very fast for eight minutes to get in the target heart rate zone. - - -
- . Some other variations include:
 - . Lift the chute high and run to the middle making a mushroom.
 - . Run around three times.
 - . Lift chute and make a mountain.
 - . Hop around two times.
 - . Lift chute all wearing blue run under and do a trick and run back. Call other colors.
 - . Let chute sink to floor and all run around until the eight minutes has lapsed.

c. Check pulse to see if target zone was reached.

3. Culmination

- a. All grasp chute, lift high to catch the air and all run under and pull chute down behind us and sit on it. Repeat the action but have children step toward the center about four steps causing the tent to go higher before settling down on us. While all sit in the magic of the tent ask the questions of the lesson:

Why do you think you feel better because you exercise?
How would this help you look better?
What did we do today that helps you to work and play better?

PROJECT HEARTY HEART

Questions: What kind of exercise conditions my heart and lungs?
How do I know I am working hard enough?
Are there any hearty heart games?

1. Warm up activity

- a. Take your stick (plastic baton) and touch as many different things as you can and as quickly as you can. - - - You must not touch any person.
- b. With your stick show me all the different ways you can stretch: high - low - one hand - two hands - other. - - -
- c. Holding your stick high in the air let's see you run around the gym three times. - - -

2. Cardiovascular development

- a. With your stick lying on the floor show me six different ways to go around it. Six different ways to go over it. Six different ways to travel up and down the length of it. - - -
- b. Continue working as quickly as you can as you run around all the sticks (making one large circle). - - - Turn and run the other way around. - - - Let's skip around both ways. - - - See if you can hop or jump all the way around. - - - Now with arms stretched sideward we'll all slide around. - - - We must continue moving because we want to increase our heart beat and our breathing.
- c. Run and jump over as many sticks as you can until you hear the signal. - - - Crawl on all fours over as many as you can until the signal goes again. - - -
- d. Make up a running game with your stick. Remember you must run all the time.
- e. The stick work is to continue for 15 minutes.

3. Culmination

- a. Check pulse to see if the stick work was in the target zone.
- b. With your stick on the floor get a ball and find all the ways you can take your ball around, over, and up and down your stick. - - -
- c. Can you make up a game using a ball and a stick and the wall. - - -
- d. Question time:
Did you work fast enough with the sticks to get in your target zone?
What was fun about working with sticks and balls?
What new ways did you find to stretch?
Could you make up some stick or ball games that we could play next time?
What would have to be done for the games to be hearty heart games?
Could you play any of the things we did today at home?

PROJECT HEARTY HEART

Questions: Do I really know how to pace myself?

What does pace mean?

Am I getting stronger so that I do not even think about sitting down unless we are counting our pulse?

1. Warm up activity

- a. All jog around the gym at an easy pace and be timed. I'll announce the time it took and then let's see if we can pace ourselves and run twice the distance in exactly twice the time. - - - Now let's try one-half the distance in one-half the time. - - - Does that help you to better understand how to pace yourself?

- b. Let's try both locomotor and non-locomotor ways of working.

In the designated space use three locomotor ways you know and keep moving. - - - Are you going sometimes forward and sometimes backward? - - - Who can go sideways while still remembering to do your three different locomotor steps? - - - I see some are running, jumping, hopping, skipping, etc. NOW on-the-spot without traveling anywhere show me curling and stretching. - - - Yes, curl up tight then stretch way out different ways each time - - - FREEZE! Keep that frozen shape and show me you can locomote making that shape. - - - Again freeze and curl and stretch on-the-spot. - - - Repeat all.

- c. What animal ways of moving do you remember? Show me at least four. - - -

2. Cardiovascular development

- a. Let's work to our target zone and stay there for 15 minutes. We'll set the clock for 15 minutes. You are to locomote (walk - run - jump - hop - slide - leap - gallup - skip) continuously. When I call a way like jump then all are to jump until I call choice when you can locomote any way you wish. Since we are wanting to work in the target zone we must keep working continuously and quick enough to get heart and lungs working hard. Ready, begin. - - -
- b. A pulse check is made after seven minutes to see if children are moving vigorously enough, then work continues to end of 15 minutes. A pulse count for 10 seconds is then made to see if the target zone is reached.

3. Culmination

- a. Who can move like your pet animal to see if I can figure out what it is? - - -
- b. Now everyone show how the crab walk is - - - forward - - - backward - - - sideways - - - turn around. - - -
- c. Let's try the seal for a distance of 15 feet and back. - - -
- d. On all-fours make your back go high like a mad cat, release it and again make a high back pulling your tummy in tight. - - - Can you move about quickly and quietly like a cat? - - -
- e. In what ways do you think you are getting stronger?

PROJECT HEARTY HEART

Questions: What have I learned about pacing myself?
What things will help me to run a mile better?
Can I keep going without stopping and do the 13 laps in a quicker time?

1. Warm up activity
 - a. Jog comfortably anywhere in the room trying out short steps, long steps, lifting knees high. - - - (1 minute)
 - b. Walk and swing arms while we talk about running the mile. - - - Be sure and stay on the outside of the cones (the running area). Jog easy trying to keep running. If you must walk keep walking rapidly and run as soon as you can. Remember what we learned about head straight ahead, arms hanging loosely, roll the foot--heel, ball, toe--breathe easy.
 - c. Stretch using: toe touch - high knee - sprinter - push-a-ways (standing about two feet away from wall with feet flat on floor. Lean to the wall letting the chest touch then push with the arms until erect again. Do not let the heels come off the floor as the hamstrings stretch.)
2. Cardiovascular development
 - a. Children run a timed mile with situations as near pre-test conditions as possible.
 - b. Check pulse and walk until heart beat is near normal.
3. Culmination
 - a. Make balanced stretched shapes:
 - . Make a one foot balance
 - . Make a one foot balance at a higher level
 - . Make a one foot balance at a lower level
 - . Make a one foot balance another way
 - . Using one hand and one foot make three different hard balanced stretched shapes
 - . Try three different balances while supporting body weight on both hands and both feet
 - . Stretch out on the floor, close eyes and sink into the floor while you rest

PROJECT HEARTY HEART

Questions: How much exercise do I need?
How often should I exercise?
What are some ways I can support my body weight?

1. Warm up activity
 - a. Easy run side by side a friend without touching friend for two minutes. - - -
 - b. Facing your partner let's do some stretching exercises: Sprinter - - -
Toe touch - - - High knee - - - Sailor - - - Licorice stick - - -
Dinosaur. - - -
 - c. You and partner do these running ways: - - -
 - . In place with high knees
 - . Softly without making a sound
 - . Slowly backwards
 - . Making heavy steps
 - . One of your own choosing
2. Cardiovascular development
 - a. For $6\frac{1}{2}$ laps going around the running area, let's see how fast you can walk.
- - - Do not slow down, do not run but walk very quickly. - - - (It
will be noted if this can be done in eight minutes or less.)
 - b. Check pulse to see if target zone was reached. Record all who walk
one-half mile in eight minutes or under.
 - c. Work at three areas of gymnastics activity: - - -
 - . Tumbling area (see Lesson 4)
 - . Jumping area (see Lesson 4)
 - . Balance beam area

The three areas are stationed as far apart as possible and children work continuously at each area until a signal is given when all at that area run counter clockwise to the next area to do the tasks designed for that area. An adult will be stationed at each area to help insure that children are working continuously and are able to understand what the tasks are.
 - d. All children run three continuous laps and then check the pulse count. - - -

3. Culmination

a. Do front leaning rest positions: - - -

- . lift head
- . roll head
- . lift one arm - other arm
- . lift one leg - other leg
- . feet go apart, return
- . touch opposite shoulder
- . touch behind back
- . turn over and back
- . touch knee to nose
- . clap hands
- . clap feet
- . slowly lower and rest

b. Show me some ways to take your body weight. - - -

c. Respond to two questions:.

- . How much exercise do I need?
- . How often should I exercise?

(At least 20 minutes of vigorous activity daily to help heart and lungs, and two or three hours daily to learn and practice basic skills, and about two other hours to walk, play, dress and care for self and help with family chores. A growing child needs five or six hours daily to meet growth and development needs.)

d. Stretch out and relax a moment.

PROJECT HEARTY HEART

Question: What are some things to think about to help make first graders play-time a safe time?

1. Warm up activity
 - a. Run to touch ten things that are square shaped. - - - While holding a hoop find all the ways you can stretch your muscles. - - -
 - . Reaching up high
 - . In back of you
 - . To the side
 - b. Place hoop on floor and find all the ways you can make bridges while stretching your body over the hoop. - - -
 - c. For one minute show how to get in and out of your hoop which is lying on the floor. - - -
 - d. For one minute continue hopping around your hoop. It's ok to change feet. - - -
2. Cardiovascular development
 - a. (Hoops, one for each child, are scattered throughout the working area with enough space between for children to work safely.) For eight minutes keep moving in and out, around, over the hoops without stopping; be sure and work quickly and vigorously to reach the target zone while trying these challenges: - - -
 - . Run around the entire area
 - . Hop in and out of each hoop
 - . Circle at least ten hoops by running
 - . Jumping on two feet circle ten hoops
 - . Walk rapidly around everyone else's hoop
 - . Travel any way you like but go high over each person's hoop landing safely
 - . Can you make a different body shape as you go into the air over a hoop?
 - b. Check pulse for ten seconds to see if the target zone is reached.
 - c. (Rectangular carpet squares and shapes of round, triangular, and square areas are placed about the working area.) For eight continuous minutes working vigorously let's respond to these challenges: - - -
 - . Jump 20 times landing on your shape
 - . On one foot go around your shape three times
 - . Place your hands on your shape and find different ways to make your feet go around
 - . Try going in a backward direction

- . Go around on all fours
- . Find some ways to make your feet go to the other side by placing one or two hands on the shape
- . Run around all the shapes ten times
- . Run zig zag fashion in and out of all the shapes until the buzzer sounds

d. Check pulse for ten seconds.

3. Culmination

a. Shape making challenges:

- . Make three different body shapes while standing on one foot on your shape. - - -
- . Can you make your body in the shape of the shape you are standing on? - - -
- . What shapes can you make while sitting on your shape? - - - While kneeling? - - - While lying on your tummy? - - -

b. Let's think of some questions we need to ask about exercising to be sure everyone is working safely. - - -

- . Is the equipment safe? Are things secure and in good repair? Are they appropriate for your size and age, not too heavy, too heavy, too high, or too easily breakable? Are things placed far enough apart so there will be no bumping? Is the equipment kept up where it will not be tripped over?
- . Are you aware of where you are playing? Have you learned how to play without bumping or colliding with others? Are you able to dodge readily and balance on different surfaces? Do you know not to run into the street?
- . Do you wear safe and comfortable play clothes? Can you move about easily without your muscles being constricted by too tight clothing? Does your shoes fit snugly, bend with your feet and have good treads for gripping the surface you play on?
- . What else? Do you know how fast you can go without losing control? Do you know the rules of the playground, the swimming pool, or of your neighbor's yard?

PROJECT HEARTY HEART

Question: When you think of hearty heart exercises, what kind do you think about?

1. Warm up activity
 - a. To the music find all the different ways you can move your feet and body and when you can think of no other way to move make a shape and freeze very still. - - -
 - b. To the slow music without letting your feet go anywhere show all the slow stretching movements that you can make while reaching up high, down low, out to the sides and in back of you. - - -
 - c. Let's do dinosaur, sailor, licorice stick, rubber bands and partner row boats to the drum beat and to the slow music. - - -
 - d. To fast music show some hearty heart ways to move until you are breathing hard. - - - (about one minute)
2. Cardiovascular development
 - a. With your rope placed on the floor in whatever shape you wish it make up a hop-jump dance for five minutes. - - -
 - b. Repeat your dance but have a definite way to start and to close. - - - (5 minutes)
 - c. Place your rope close to a friend and you and the friend both working at the same time do your hop-jump dance using both ropes. - - - (5 minutes)
 - d. Check pulse to see if target zone was attained.
3. Culmination
 - a. Make body sounds as you make different body movements. - - - Repeat.
 - b. Move to these three different sounds (wood blocks, maracas, clanging harsh sound). - - - Explore again making your movements much larger. - - - Try again making the movement fit the instrument you hear.
 - c. Do place dance. (From Mary Joyce, First Steps in Teaching Creative Dance to Children.)
 - d. Is dancing good hearty heart activity? How do you know?

PROJECT HEARTY HEART

Question: What are some fun ways to try with the stretch rope and the parachute?

1. Warm up activity
 - a. Run and touch five different blue things in the gym. - - -
 - b. Walk only on a line until you find your name tag then run once around the gym, outside the cones. - - -
 - c. Do reaching exercises to music for one minute. - - -
2. Cardiovascular development
 - a. Stretch rope for small groups of about eight. To music have children turn their rope all the way around following these cues:
 - . Fast walking ways to the right. - - - To the left. - - -
 - . Run right. - - - Run high knees left. - - -
 - . Jump to the center. - - - Return. - - -
 - . Hop one foot all the way around. - - - Gallop the other way. - - -
 - . Slide one-half way around. - - - Return. - - - Skip around two times. - - -
 - b. The above locomotion is repeated by going backwards, softly, heavy, fast, slow. - - -
 - c. Children play jump the brook being sure to cross over in one direction. Children find different ways to cross the brook (jump, hop, leap, etc.). - - -
 - d. Parachute activity--one small 'chute is used with each group of eight children. Respond to these challenges:
 - . Make ripples and waves. - - - Make the 'chute spin around very fast. - - -
 - . Go other way, dipping 'chute. - - -
 - . With two hands pull very hard making the ones across from you give ground. - - -
 - . With your back to the 'chute can you pull very hard? - - -
 - . Locomote different directions and speeds while: galloping, running, etc. - - -
 - . Make a mountain. - - - A mushroom. - - - Let 'chute sink to floor, run around. - - -
3. Culmination
 - a. Make a magic tent to sit under for a short time and let children enumerate the fun ways we found to work with the stretch rope and parachute.

PROJECT HEARTY HEART

Question: How can gymnastic ways of moving help my heart?

1. Warm up activity
 - a. Easy run and touch all the blue spaces then run and take your weight on your hands in each blue area (front leaning rest). - - -
 - b. Run and touch ten cones. - - - Do stretching exercises lying on the floor, sitting on the floor, kneeling, standing. - - -
2. Cardiovascular development
 - a. Fast walk for eight minutes counting the number of times you can get around the gym. - - - All should get seven or more laps. Check pulse.
 - b. Work at three gymnastic areas which are placed at least ten yards apart so that children work at one area and then run to the next area to do the tasks there before going to the third area (tumbling, jumping, balance beam, see Lesson IV).
 - c. Children skip or run three laps then check the pulse count. - - -
3. Culmination
 - a. Work on all-fours balancing
 - . Lift one arm - - - other arm - - - one leg - - - other leg - - -
 - . Lift right arm and left leg - - - left arm and right leg - - -
 - . Lift arm and leg on same side with the part fully stretched - - - Reverse - - -
 - b. Work on standing balance
 - . Lift one leg with toe touching opposite knee - - - other leg - - -
 - . Repeat above with arms clasped behind the back. - - -
 - . Repeat both of the above with eyes closed. - - -
 - . Standing on one leg find different balanced positions by placing the free leg in different places.
 - c. Respond to questions:
 - . Are you walking more laps in eight minutes than you did earlier?
 - . What gymnastic things are you finding difficult to do and also cause your heart and lungs to work as well as your muscles?
 - . Is it hard to balance with eyes closed?

PROJECT HEARTY HEART

Questions: Can I keep working for fifteen minutes without stopping?
Am I in my target zone?

1. Warm up activity
 - a. Walk around the designated space. - - - When you hear the drum signal show an animal walk of your own choosing. - - - On signal walk again and show a different animal walk for four more signalled times with walking in between. - - -
 - b. From one end of the gym (30 yards) run to the other end to pick up an object (bean bag, eraser, or other small item) and bring it back to the starting point. See how many objects you can obtain in three minutes. - - -
 - c. Show some ways that animals might stretch (mad cat, tall giraffe, big gorilla, hungry lion, elephant, other). - - -
2. Cardiovascular development
 - a. For 15 minutes let's work in our target zone. Move about the space anyway you want to until you see me hold a picture of an animal up high. You are to move ways you think that animal might move, you may go different directions, different speeds, and at high and low levels if you choose. Remember, you want to work continuously for 15 minutes in your target zone. Ready, go. - - - (Teacher will give continuous cues along with holding up the pictures of animals.)
 - b. Check pulse for a 10 second count.
3. Culmination
 - a. Let's use animal walks that take most of the weight on the arms.
 - (1) Seal: body extended with hands flat on the floor, legs straight and toes stretched outward with the instep against the floor.
 - . Move forward to a line 10 feet away. - - - Return - - -
 - . Can you turn around? - - -
 - . Can you slap your hands two times, three times? - - -
 - . What other seal trick can you do? - - -
 - (2) Crab: in an inverted position, tummy toward the sky, and weight on hands and feet with the body in a flat table top position.
 - . Move forward - - - backward - - - sideward - - -
 - . Move forward (feet first) on signal turn all the way around and return to start in a backward manner (head first).
 - (3) Mule: in an all-fours position:
 - . Move quickly about the space.
 - . Be a stubborn mule and paw the ground.
 - . Show a mule kick position getting the feet in the air and kicking them 1, 2, 3 times. Can you get the feet higher? - - -

PROJECT HEARTY HEART

Question: Can I improve my mile run time?

1. Warm up activity
 - a. Run and touch all the cones. - - -
 - b. Find your name tag and jump-hop-skip with the music. - - -
 - c. Stretch arms and back - legs and hips - feet and toes - do sailor and licorice stick. - - -
2. Cardiovascular development
 - a. Children run a timed mile with situations as near pre-test conditions as possible. - - -
 - b. Check pulse and walk until heart beat is near normal. - - -
3. Culmination
 - a. Play "Jaws."

Children have set responses to make to various calls:

SHIP - Run to one side of the gym.
SHORE - Run to the other side.
SARDINES - All run and get in the blue circle (small space).
JAWS - Wherever the children are when they hear this call they must flatten themselves on the floor and be sure to interlink arms and legs with others to keep jaws from getting you.
RESCUE - Children jump up and clap hands and shout "yeah."
FISHERMAN'S ALL - Children must sit (two deep) on someone else's lap in a sitting fishing position.
FISHNET - Children must find something to hang to in order to get their feet off the floor.

- b. Dismiss.

PROJECT HEARTY HEART

Question: What ways can I keep moving while working with a ball?

1. Warm up activity

- a. Run two laps. - - - Find your name tag and come back to the blue circle and get a stick and jump until entire group is together. - - -
- b. Let's play North Wind-South Wind while holding your stick with both hands. Teacher points to the north (right) and all slide that way - - - south wind all slide to the left - - - East (move forward) - - - West (move backwards) - - - it's a hurricane, spin around three times. - - -
- c. Find ways to stretch using your stick to really extend your muscles. - - - Can you place your stick on the floor and find different ways to stretch your body over it? - - - A high bridge. - - - A very long bridge. - - - An upside down bridge. - - -
- d. Find ways to go over your stick very quickly. - - - Very light ways. - - - Heavy ways. - - -
- e. Pick up your stick and run all the way around holding your stick high (sticks are recovered and children each get a ball). - - -

2. Cardiovascular development

- a. I need to know all the ways you can work with your ball while moving:
 - . Toss it easy in the air and catch it while moving about the space. - - - If it hits the floor perhaps you are tossing it too high. Let's see how long you can work without touching anyone or letting your ball hit the floor. - - -
 - . Show me all the ways you can send your ball to the floor while moving about. - - - Watch out that you have it under control. - - - Do not bump. - - - And see if you can find different parts of your body to bounce the ball with. - - -
 - . Let's see some kicking ways to send your ball across the floor and to the wall. - - - Run and kick only your ball. - - -
 - . Everyone try and tap your ball gently with each foot while skipping along close to it. - - - We call that a dribble. - - -
 - . Let's see who has enough control to dribble the ball zigzag fashion in and out of the cones (three cones placed in a line six feet apart and ten feet from the wall). Some may try and kick the ball forcefully to the wall after dribbling past the three cones. - - -

- . Everybody dribble your ball around one stick placed on the floor (a stick for each child). - - -
 - . Now reverse and dribble around the other way. - - -
 - . For the rest of our fifteen minutes you may choose any of the ways to move the ball (bounce - dribble - kick - toss and catch). - - - No bumping anyone and try and gain control of your ball.
- b. Show me some on-the-spot ways to control your ball:
- . Easy toss and catch.
 - . Catch with one hand.
 - . Bounce the ball with the right hand, left hand.
 - . What different parts of your body can you make the ball go around (head - neck - waist - hips - knees - etc.)?
3. Culmination
- a. What movements can you combine while moving in space with your ball? - - -
 - b. Use the wall for your partner and show me some other combinations. - - -
 - c. Put your ball in the sack and let's talk.
- . What moving ways can I do with the ball?
 - . What ball skills do I need to work on?
 - . Is ball work hearty heart activity?

PROJECT HEARTY HEART

Questions: What must I do to jump higher?
How can I take my weight different ways than on my feet?

1. Warm up activity

- a. Run about the space and when you hear the drum beat stop and take your weight on your hands for a short while. - - - Be sure your feet are off the floor.
- b. Jump about and on the drum beat see if you can make your feet go higher into the air while you are taking your weight on your hands. - - -
- c. See if you can travel by taking your weight first on your hands and then on your feet. - - - Can you find different ways? - - -
- d. For a long body stretch, let's try the measuring worm. - - - Place your hands on the floor and walk them as far away from your feet as you can, with the feet kept stationary in place. - - - Now, walk the feet up to the hands which are not moving - - - that stretches the back of your legs (the hamstrings). Repeat a number of times.

2. Cardiovascular development

- a. Choose a partner to walk fast with for eight minutes. Do not touch your partner but walk very fast around the gym area and each of you keep count of your trips. See if you can get more than eight trips before the time is up. - - -
- b. Lead your partner in some of the exercises we have done (sprinter - toe touch - sailor, etc.). - - - Then reverse roles. - - -
- c. Work at one of three gymnastic areas doing three different tasks three times each before running to the next area:
 - (1) Tumbling
 - . Do log rolls the length of the mat. - - - Egg rolls for two turns. - - -
 - . Try a tucked forward roll without your head touching the mat. - - - Another way. - - -
 - (2) Jumping
 - . Come off the apparatus safely, roll with hands on mat. - - -
 - . Make different shapes as you go high into the air, land and roll. - - -
 - . Jump high into the air with body fully stretched before landing. - - -

3. Culmination

- a. Check pulse to see if gymnastic work was demanding enough.
- b. Face a partner from four feet away and do mirroring exercises similar to those suggested in Lesson IV.
- c. Review the questions posed at the beginning of the lesson.

PROJECT HEARTY HEART

Questions: What different ways do I know how to locomote?
Are these good ways to work in my target zone?

1. Warm up activity
 - a. Run and touch as many cones as you can before you hear the signal. - - -
Who touched ten?
 - b. Choose one cone far away from this spot and on the signal run and touch that one and come back to the blue circle then run ten trips to touch your cone. - - -
 - c. Show me three ways to go and touch your cone other than running ways. - - -
 - d. Who remembers an animal walk way to go to your cone and when you get back to the blue circle let's see you stretch like animals stretch. - - -
2. Cardiovascular development (use musical accompaniment)
 - a. For five minutes move on all-fours like bears, horses, crabs, seals, or puppy dogs. - - - (Motivate by calling for different directions, different speeds.)
 - b. For five minutes move jumping ways making both feet hit the ground together. - - - (High - low - forward - backward - turning - soft - heavy - fast - slow - do something different with your arms - make a pattern in the snow, square, circle, etc. - jump a line forward - jump sideways as going back and forth over a line.)
 - c. For one minute walk about slowly to rest a bit. - - -
 - d. Finish with four minutes moving on only one foot at a time. The hopping foot may be changed often. - - - (Different direction - different level - different speed - different floor patterns - these are difficult tasks and children will need to be encouraged to stay on task.)
3. Culmination
 - a. Show me how your pet animal moves. - - - Fast ways - - - Very slow ways - - - Forward - - - Now backward. - - -
 - b. Hold up animal cards and have children move as bears, elephants, tigers, etc. - - - How would the animal move if he had one hurt paw? - - - How would the animal move if he had just won a blue ribbon for being the best animal in the zoo? - - - Can you move exactly like one other animal so that both of you are moving at the same time? - - - Remember no touching!

PROJECT HEARTY HEART

Question: What are some challenging things to try on the balance beam?

1. Warm up activity
 - a. Run three laps and then get on a spot and jump until all children are on a spot. - - -
 - b. Travel a different way from your spot to the farthest blue area for ten different trips. - - -
 - c. Show all the ways you can make a stretched shape over your spot. - - -
2. Cardiovascular development
 - a. Go to a beam area and find a hard way to go across then return to your spot and make two different stretched positions before going to another beam area. - - - Work continuously for 15 minutes trying all the different ways you can think of to cross and balance on the beams. - - -
 - b. Check pulse to see if target zone is attained. - - -
3. Culmination
 - a. Take an all-fours position and go around your spot two ways. - - -
 - b. Can you balance two different ways over your spot with four body parts touching the spot. - - -
 - c. Find an interesting way to get to your spot, make a balanced stretched shape and get off. - - - Repeat a different way. - - -
 - d. Can you make an interesting sequence of movement that includes approaching, arriving on, balancing and leaving your spot? - - -

PROJECT HEARTY HEART

Questions: Am I able to walk very fast without breaking into a run?
Can I better my number of laps walked in eight minutes?

1. Warm up activity
 - a. Children run to find their name tags and then run with a partner for two minutes. - - - Children are reminded to not touch their partner nor to touch the gymnastic apparatus.
 - b. On signal children run to the center of the gym and continue moving by running in place, jumping, hopping. - - -
 - c. Stretch positions are reviewed: sprinter, toe touch - high knee, candy stick, sailor, and measuring worm. - - -
2. Cardiovascular development
 - a. Children fast walk for eight minutes trying to get more than seven turns around the area. - - -
 - b. Pulse count is taken to see if target zone work occurred. - - -
 - c. Children work at three gymnastic areas for two minutes alternating from one area to the other. - - -
 - (1) Jumping area (only two children at a time work at the four sub-stations. On the drum signal the child rotates clockwise to the next station.)
 - (2) Tumbling area (four substations as above).
 - (3) Balancing area (four substations as above).
 - d. Pulse count is taken. - - -
3. Culmination
 - a. Do different front leaning rest positions. - - -
 - b. Do measuring worm. - - -
 - c. Stand on one foot for six seconds. - - -

PROJECT HEARTY HEART

Question: Has my mile time been improved?

1. Warm up activity
 - a. Run and touch six different things that are blue (return to blue circle).
- - -
 - b. Run and touch three different things that are red. - - -
 - c. Run and touch one thing that is white and make three round trips to touch it. - - -
 - d. Stretch some ways you have seen our flag blowing in the wind. - - -
2. Cardiovascular development
 - a. Children run a timed mile with situations as near pre-test conditions as possible. - - -
 - b. Check pulse and walk until heart beat is near normal. -.- -
3. Culmination
 - a. To lively march music step with prancing steps as if you were: - - -
 - . Playing a trombone in a band
 - . Beating the big drum
 - . The drum major leading the band
 - . A majorette twirling a baton
 - . A prancing horse in a parade
 - . The clowns in a parade
 - . Soldiers marching
 - . A marionnette
 - . Following a partner
 - . Marching side by side with a partner

PROJECT HEARTY HEART

Question: Why is dancing good exercise?

1. Warm up activity
 - a. Who can jump their rope while moving about the gym to the music? - - -
 - b. Place your rope on the floor in a circle and move in and out of everyone's rope, when the music stops you must freeze inside someone's rope taking your weight on whatever part I call. - - - (Seat - knees - back - tummy - nose and knees touching - two parts - three parts - four parts - etc. One rope is removed so children feel the urgency to get inside a rope. Children can be told they are pretending to have nine lives like a cat and if they are the last one who cannot find a rope they lose one of their nine lives.)
 - c. Without the ropes skip or dance about and when the music stops you must find someone and give them a big hug. - - - Skip again when the music starts. - - -
2. Cardiovascular development
 - a. The following simple structured dances are taught and danced for 15 minutes: Simple Patty Cake Polka, Seven Jumps, Crested Hen. - - -
 - b. To the music of Crested Hen, children skip and dance vigorously for an additional two minutes. - - - Check pulse to see if target zone attained. - - -
3. Culmination
 - a. Face a partner and to the music mirror your partner's movements. - - - (Children reverse roles and respond to the caller's challenges.)
 - . Use one hand different ways. - - - Two hands. - - - One hand and one foot. - - -
 - . Make your knees important. - - - Your back. - - -
 - . Make all of you move but do not travel. - - -
 - . Go toward your partner and move away while making arm movements. - - -
 - . Go high toward the ceiling and then sink toward the floor. - - -
 - . Follow your partner somewhere while making different arm movements. - - -
 - b. Perhaps sometime we'd like to mirror a partner while developing a dance sequence. Why is dancing good exercise?

PROJECT HEARTY HEART

Question: How can I make the muscles of my arms and shoulders strong?

1. Warm up activity
 - a. Run in place on four different blue spots for 50 steps. - - -
 - b. Get your name card and come and take a front leaning rest position. - - -
 - c. Can you do these (while in front leaning rest position)?
 - . Circle your head around. - - -
 - . Look up. - - - Look down. - - -
 - . Walk feet apart. - - - Together. - - -
 - d. Ease your body to the floor and listen. - - - (Do some on-the-floor stretching.)
2. Cardiovascular development
 - a. Stretch rope work in small groups of eight children. Each child gets to be leader and calls out what the activity is to be, while children are waiting for leader to decide they hold on to the rope and run in place (6 minutes). - - -
 - b. Children take turns holding the stretch rope for jump the brook. - - -
Jump three times and then hold the rope is a good rule (4 minutes). - - -
 - c. Parachute work in small groups of eight. Children take turns calling out the action (adult helper needs to assist with decisions to keep the work at a cardiovascular level (8 minutes). - - -
3. Culmination (using the larger 'chute)
 - a. Various locomotor both directions. - - -
 - b. Pop corn by placing different colored balls on to be popped off. - - -
Repeat. - - -
 - c. Make a mountain. - - -
 - d. Change places by colors or numbers. - - -
 - e. Make a magic tent and talk about the exercise question. - - -

PROJECT HEARTY HEART

Question: Can I find a new gymnastic way to work at the different stations?

1. Warm up activity
 - a. Run and find name tags and run around the cones as soon as you've found yours. - - -
 - b. Jumping, hopping, running in place ways until all have gotten to the center. - - -
 - c. Review all the stretching ways we have worked. - - -
2. Cardiovascular development
 - a. Fast walk for eight minutes with all children striving to get more than eight times. - - - Keep a record of times walked.
 - b. Check pulse. - - -
 - c. All run three laps around. - - -
 - d. Divide into three groups to work at the gymnastic areas. Today you may work at any area of your own choosing so long as there are no more than two children at a working spot. You must go to another station immediately after you finish at one. Run to the next spot to keep your heart working. - - - The same three stations (jumping, tumbling, and balancing) are arranged in four substations making 12 working areas.
3. Culmination
 - a. Children practice different balanced positions on the apparatus used in the working areas. - - -
 - b. Children come to the floor, make four shapes and relax. - - -

PROJECT HEARTY HEART

Question: Can I make up a hearty heart game that first grade children would like?

1. Warm up activity

- a. Run and get name tags and run around once. - - - Jump in the blue circle. - - -
- b. Hop, skip and jump seeing how far you can get. - - - Repeat 3 times. - - -
- c. Get a stick and touch 10 blue objects before returning to the circle. - - -
- d. Find five red things to touch but travel backwards. - - -
- e. Run around the cones, tap stick to the floor five times and run again. - - -

2. Cardiovascular development

- a. Place stick on floor in the designated space and run and jump over every one's stick without bumping or touching a stick. - - - Every time you touch anyone or touch a stick you lose one of your nine lives.
- b. Run and leap over all the sticks while making a turn in the air. - - -
- c. Each child has a ball and is to keep the ball rolling. If your ball is not rolling you lose one of your nine lives. - - -
- d. Each child must move while bouncing the ball to keep from losing a life. - - -
- e. Those who haven't lost any of their lives line up within 15 feet of the east wall and bat their ball to the wall, recover and repeat. - - - The other children line up near the west wall and bat their ball there. - - -
- f. Make up a game with your ball and the wall. - - -

3. Culmination

- a. Strike ball to your partner who strikes it back to you. - - -
- b. Return balls and gather in front leaning rest positions. - - -
 - . Hold very still, very straight bodies. - - - Lift and lower heads. - - -
 - . Walk feet apart and together. - - - Lower to floor and lie on back. - - -
 - . Look at your toes and lower on signal.
- c. What is the name of the game you made up with your ball and the wall?
The game we played with the rolling ball is called "Frantic Ball."

PROJECT HEARTY HEART

Question: How can I make benches and carpet squares fun?

1. Warm up activity
 - a. Run in and out of the bench and carpet square area until freeze signal. - - -
 - b. While in your frozen area show different stretching movements. - - -
 - c. Travel again a way other than running. - - - Repeat for four more times changing the mode of travel each time. - - -
 - d. How much distance can you cover with a hop, a skip and a jump? - - - Repeat. - - -
2. Cardiovascular development
 - a. You and a partner choose an area to work in and show all the different ways you can run and get on the bench. - - -
 - b. Try running on to the bench and making different stretched balanced shapes. - - -
 - c. Combine approaching, arriving on, balancing and leaving the bench different ways. - - -
 - d. Work to make an interesting smooth sequence of movement. - - - (Offer needed help.)
 - e. Can both of you do your sequence at the same time? - - -
3. Culmination
 - a. You and partner will show a down and up movement pattern. When one partner is down the other one is up. - - -
 - b. Explore an over and under pattern. - - -
 - c. Try double hops, wring the dish rag, chinese get-up, double turk stand, ding dong bell and human rocker, for example. - - -

PROJECT HEARTY HEART

1. Warm up activity
 - a. Three laps around.
 - . Travel different ways from one place to another. - - -
 - . Go over the ropes on the floor taking weight on different body parts. - - -
 - . Choose two methods of traveling on the feet with a definite pause in between the first and the second (drum and tambourine). Repeat. - - -
 - . On signal stop quickly and hold your balance. (Variety - control - hold) - - -
 - . On signal when you have control slowly curl up, roll over, come to your feet and go again. Let's work on our own sequence: travel - stop - balance - hold - curl - roll - come up smoothly and repeat. - - -
 - . Find a still position - travel - hold still. Repeat. - - -
2. Cardiovascular development
 - a. Review turning (start wide, pull narrow and finish wide), stop with control after a full turn. Experience clockwise and counterclockwise turns. - - -
 - b. Combine: Travel - stillness - turn in one direction - turn back. Repeat sequence until there is good control of the actions and stillness. Vary the practice by using more space, less space, different traveling ways. - - -
 - c. Try different ways of moving from standing to lying. Focus on the method (knees bend, body tilts sideward, hands touch, body stretches out to lie on right side). Repeat several times. - - -
 - d. Work on the sequence: Travel - stillness - turn - stillness - turn the other way - stillness - sink to the floor. Repeat five times. - - -
 - e. To a definite rhythm travel six beats - turn three - turn back three - sink four. - - -
3. Culmination
 - a. Let's try traveling - go into the air - land - hold very still - turn - hold still - turn the other way - hold still - sink to the floor. Repeat to accompaniment. - - -

PROJECT HEARTY HEART

Question: What are some other gymnastic ways to move that are fun and also work my heart?

1. Warm up activity
 - a. Hop - jump - jog in place finding different things to do with arms for three minutes. - - -
 - b. Run and get your name tag and walk very fast around the gym. - - -
 - c. Do windmill stretching, sitting toe touches, hurdle position exercises. - - -
2. Cardiovascular development
 - a. Fast walk for eight minutes. - - - All that can do it eight times get a star, nine times gets two stars, and ten times gets three stars.
 - b. Choose a partner to do the following partner gymnastics for eight minutes:
 - (1) Down and Ups: Find different ways for one partner to be down and other up. - - -
 - (2) Over and Under: Find different over and under ways to use your partner. - - -
 - (3) Push and Pull. - - -
 - (4) Double Hops: Hold partners left foot while both hop. - - -
 - (5) Ding Dong Bell: Link elbows back to back, bend forward bringing your partner off the floor. - - -
 - (6) Chinese Get Up: Standing back-to-back with arms linked, sit with legs stretched out, return to standing by pushing against partner's back. - - -
 - (7) Knee Touch: Touch partner's knees but don't let him touch your knees.
 - (8) Seat Tag: Tag partner's seat but don't let your seat be tagged. - - -
3. Culmination
 - a. Check pulse to see if target zone is reached. - - -
 - b. You and partner make different shapes on the floor by combining your bodies. Do not touch your partner. - - -

PROJECT HEARTY HEART

Question: How much better am I running a mile?

1. Warm up activity
 - a. Run and touch a blue basketball free throw lane and then the center circle until you have touched all four lanes for three times each. - - -
 - b. Walk quickly and touch all of the areas once each. - - -
 - c. Show me you can hop and touch all of them once. - - -
 - d. Gallop around the outside of all the blue spaces. - - -
 - e. Get on a blue space and stretch yourself as wide as you can be. - - -
As high as you can be. - - - Can you hold to your ankles, keep your knees very straight and walk from one blue space to another? - - -
2. Cardiovascular development
 - a. Children run a timed mile with situations as near pre-test conditions as possible. - - -
 - b. Check pulse rate and walk until heart beat is returned to near normal. - - -
3. Culmination
 - a. Using a large playground ball can you keep your ball bouncing while moving inside a blue area? - - - (1 minute)
 - b. Move very quickly while keeping your ball under your control. - - -
Remember, you must stay in the blue area and you must not touch anyone. - - -
 - c. Show me you can toss your ball and catch it about ten times. - - -
Can you move in the blue space while you are tossing and catching your ball? - - -

PROJECT HEARTY HEART

Question: How can I tell if my shoulder-girdle muscles are stronger?

1. Warm up activity
 - a. Run around outside the cones for four trips (around gym area). - - -
 - b. Jump in place in the blue circle while chanting "Jump Jim Jo." - - -
 - c. Find name tag and take a crab walk position. Can you change from a crab to a face down position three times? - - -
 - d. Practice the measuring worm for a distance of ten feet. - - -
2. Cardiovascular development
 - a. Each child has an individual stretch rope and makes different shapes to the music:
 - . While standing on two feet - - - sitting on the floor - - -
 - . While lying on the back - - - lying on the tummy - - -
 - b. Children explore with a partner while working with one rope. - - -
 - c. Using the big stretch rope work in small groups of eight to the music for four minutes. - - -
 - d. Play jump the brook for two minutes. - - -
 - e. Using the parachute in small groups of eight each review all the previous parachute activities as the teacher calls them out:
 - . Run around - - - gallop the other way - - -
 - . Jump one-half the way around - - - finish with a slide - - -
 - . Hop one foot one-half way; try the other foot back - - -
 - . Make ripples and waves - - - pull the other fellows across - - -
 - . Make a mountain - - - make a mushroom - - - make a magic tent - - -
 - f. Place 'chute on the floor and locomote the different ways around. - - -
3. Culmination (with the big 'chute)
 - a. Flip the pancake (one-half the children step back after helping lift as the other children run under causing the 'chute to flip over like a pancake.- - - Repeat reversing roles. - - -

PROJECT HEARTY HEART

Question: What must I do to be a fast walker and get a better score?

1. Warm up activity
 - a. Make forward running movements until signal then run backward, on next signal run sideways - - - repeat using a jump - - - gallop or slide - - - skip - - - hop. - - -
 - b. Run and get name tag and walk very fast around the area. - - -
 - c. See if children can take turns leading stretching exercises. - - -
 - d. All do inchworm. - - -
2. Cardiovascular development
 - a. For our last fast walk lesson, let's see how many stars you can place by your name: 8 = 1; 9 = 2; 10 = 3; 11 = 4.
 - b. Find different ways to arrive on the pieces of apparatus then find different ways to leave the equipment while landing safely. Children work continuously moving from one place to another as they solve the task at ten different stations. - - -
 - (1) Beat board and mat
 - (2) Rectangular table
 - (3) Square box three feet high
 - (4) Swedish box
 - (5) Block stacked on block 2½ feet high
 - (6) Two tires
 - (7) Inclined mat
 - (8) Bench
 - (9) Low horizontal bar
 - (10) Low balance beam

Children must move to all the stations, working quickly to get to try each one. If there is no vacant station, children are to work on scooters on the floor.
 - c. Pulse count is made to see if the work was in the target zone.
3. Culmination
 - a. Make curled and stretched shapes. - - -
 - b. Move from a very tight curled shape to a stretched out shape. - - -
 - c. Do it again very slowly, now very quickly. - - -
 - d. Stretch up high, curl down low. - - - Stretch down low and curl some part at a high level. - - -

PROJECT HEARTY HEART

Questions: What things do you remember that we've had fun doing?
How can you continue to keep your heart and lungs in good shape?

1. Warm up activity
 - a. Run and get name tags and make two trips around the area. - - -
 - b. Hop ten times right foot, ten times left foot in the blue circle. - - -
 - c. I'll call out an animal (use pictures) and you run like you think that animal might run: deer - turtle - bear - elephant - crab - kangaroo - horse - their choice. - - -
 - d. Let's stretch like a mad cat - tall giraffe - one legged stork - measuring worm - slithering snake - huge gorilla - their choice. - - -
2. Cardiovascular development
 - a. Free choice work for ten minutes, using balls, sticks, ropes, hoops or paddles and tennis balls. Play nine lives losing a life if you are found sitting down or standing still or touching anyone. - - -
 - b. Five minute work with partner so long as both of you are moving. - - -
3. Culmination
 - a. All equipment is returned and children are grouped in the blue circle. The cues for playing "Jaws" are reviewed and three minutes are spent with the game. - - -
 - b. Questions posed regarding what things are fun to choose to play when alone, when with a friend, and when with a small group.

PART II

PROJECT HEARTY HEART

HEALTH EDUCATION CURRICULUM

by

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PROJECT HEARTY HEART

Health Education Curriculum

- I. Overview of the Cardiovascular System
- II. Physiology of the Cardiovascular System
- III. Hearty Heart Exercise
- IV. Prevention of Cardiovascular Disease
- V. Keeping a Hearty Heart
- VI. Help for the Hurting Heart
- VII. Hearty Heart Nutrition

The seven subject areas, consisting of sixteen lessons are presented in simple fashion to meet the heart knowledge needs of first grade children. The lessons are written to supplement the 32 physical education lessons. The children have two physical education lessons and one health instruction lesson each week for a period of sixteen weeks.

Part I. Overview of the Cardiovascular System (one lesson)

Questions to be answered are:

- Where is my heart located?
- How does my heart work?
- What is the cardiovascular system?

Part II. Physiology of the Cardiovascular System (one lesson)

Questions to be answered are:

- How do I take my pulse?
- What makes the sound when my heart beats?

Part III. Hearty Heart Exercise (three lessons)

Questions to be answered are:

- What happens in my body when I exercise?
- What kind of exercise activities do I want to do?
- What can I do to get ready to exercise?
- How do I get warmed up and how do I cool down?
- What are aerobic activities?
- Which ones are good ones for me?
- What hearty heart exercises will improve my heart rate?
- How can I monitor my target zone?

Part IV. Prevention of Cardiovascular Disease (three lessons)

Questions to be answered are:

- What must I do to keep a hearty healthy heart?
- How do I keep from getting too tired, too hungry, and too worried?
- What are some signs I am sick?
- When do I go to the doctor?

Part V. Keeping A Hearty Heart (three lessons)

Questions to be answered are:

- What are risk factors?
- What is high blood pressure?
- Why is cigarette smoking harmful?
- How can I recognize stress?

Part VI. Help for the Hurting Heart (one lesson)

Question to be answered is:

- What emergency procedures should I be able to follow:

Part VII. Hearty Heart Nutrition (four lessons)

Questions to be answered are:

- What makes a balanced meal?
- Why is breakfast so important?
- What makes a good school lunch?
- What are good and poor snacks?
- Why are fruits, vegetables, whole grains, low-fat milk products and lean meats better for you than sugar, salt, and saturated fats?

In each of the lessons the subject area is stated and underlined. Questions are posed from the viewpoint of the child. These overall questions express the concept to be focused on and the objective to be realized. Vocabulary words may be taught by word cards or by other means.

Each lesson is structured in three parts:

1. Introductory questions are stated by the teacher asking them of the children. In parentheses some expected answers are suggested. Teachers are free to use the questioning as they desire. Some are stated as activities for the children to carry out. Both questions and activities are designed to set the stage for learning, help the children get the idea and to motivate accomplishment of the task during the 30 minute lesson.
2. The development part of the lesson requires the greater amount of the class time. Questions and activities are presented to establish more firmly the concepts introduced and to allow time for experimental learning activities. Activities such as role playing, dramatizations, story telling, drawing pictures, viewing films and other media, taking pulse, chart making, and talking sessions are included.
3. The culminating activities are suggested for closure of the lesson ideas and for reinforcement of concepts learned. The amount of time needed for this part of the lesson will vary between five and ten minutes. Sometimes the teacher may list on the board various activities and children may pick out the ones they want.

These lesson materials are based on information from the American Heart Association and also from Project Superheart, a heart disease intervention program for young children at Suny College, Courtland, New York. Project Hearty Heart was funded by Eastern Kentucky University and was under the direction of Dr. Agnes Chrietberg and Dr. Dorothy Harkins, professors of physical education at Eastern. Supplementary materials to provide additional activities were included at the end of each lesson, but are only referred to in this copy.

PROJECT HEARTY HEART

Overview of the Cardiovascular SystemVocabulary Words

Questions: Where is my heart located?
How does my heart work?
What is circulation?

heart
sternum
chest cavity
circulation

1. Introductory questions and activities

- a. Who knows where their heart is? Can you place your hand on your heart?

(The heart is located under the breastbone [sternum], slightly tipped toward the left side, inside the chest cavity.)

- b. When you say the pledge to the flag where is the hand placed? Why is the hand placed there?

- c. On the outline of the human body place an "X" where the heart is located. Can you draw a shape like the heart around your "X"?

2. Development

- a. What does the heart look like? What is the size of the heart?

(Pictures, heart model.)

- b. How do you know your heart is working? Feel its beat by placing your hand there.

- c. How would you describe the heart? (Like a pump.)

(Two muscular pumps working side-by-side to pump blood to all parts of the body. Take apart the model to show the chambers.)

- d. What moves from the heart to all of the body parts? (Blood.)

3. Culmination

- a. Show the film "The Adventures of a Man in Search of a Heart" (American Heart Association, five minutes). Follow the suggested guide (D-3, AHA) with introduction, questions for the discussion, and learning activities.

(1) Children draw pictures of those who have healthy hearts, unhealthy hearts.

(2) Children demonstrate exercises which are good for the heart.

- b. Do activities from Color Me Red pages 3 and 4.*

*Kuntzleman, Charles T. Color Me Red, Arbor Press, Spring Arbor, Michigan, 1977.

PROJECT HEARTY HEART

Physiology of the Cardiovascular SystemVocabulary Words

Questions: How do I take my pulse?
What makes the sound when my heart beats?
What is the cardiovascular system?

pulse
stethoscope
cardiovascular system
blood vessels
artery/vein/capillary

1. Introductory questions

a. What is pulse?

(A point on the body where the movement of the blood through the arteries can be felt.)

b. What places can you feel your pulse?

(Inside of wrist, temples, neck, jaw bone, inside upper arm, groin, under the knee, instep of foot.)

c. How does the blood get from your heart out to your toes, your arms, your head, and all other parts of your body?

(Blood vessels.)

d. What kinds of blood vessels do you know about?

(Arteries—carry blood away from the heart; Veins—carry blood to the heart; Capillaries—so tiny that you cannot see them carry oxygen and food out to the body cells and bring back CO₂ and waste products. They join the arteries to the veins.)

2. Development

a. Children palpate pulse in as many places as possible by placing the first two fingers lightly on the site where the heart beat can be felt as the blood is moving through the arteries. Children mark an "X" on the body outline where they felt their pulse.

b. Read A Drop of Blood by Paul Showers, Crowell, New York, 1967, in class and carry out the activities.

3. Culmination

a. Use DE-2 activity (AHA).

b. Have children make a stethoscope out of a paper towel roll. Cover with colorful paper or designs. Listen to a friend's heart. This was the first type of stethoscope. What are its disadvantages? What makes it better than putting an ear against a person's chest?

PROJECT HEARTY HEART

Hearty Heart ExerciseVocabulary Words

Questions: What happens in my body when I exercise?
What kind of exercise activities do I
want to do?

cardiovascular fitness
perspiration
resting heart rate
target heart rate zone

1. Introductory questions

- a. What happens to your heart and lungs when you run and play?

(The heart beats faster; breathing is faster to take in more oxygen;
perspiration increases to regulate body temperature.)

- b. How can you tell your heart beats faster? (Feel my pulse.)

- c. What do you like to do when you exercise?

(Run, jump rope, dance, swim, climb ladders, do gymnastics, play soccer,
etc.)

- d. What things can you do alone?

(Skate, ride bike, run, skip rope, etc.)

- e. What things require a partner?

(Partner stunts, some games.)

- f. What are very active things that all of you can do?

(Things requiring simple skills like locomotor movements, simple ball play,
etc.)

- g. What are some things that you have to learn to play, and require special
skills?

(Riding a bike, skating, soccer play, etc.)

- h. Why do you choose some ways to play over others?

(Kind of toys owned, kind of encouragement received, what friends play, etc.)

2. Development

- a. Children practice taking their resting heart rate.

(1) Use the body outline and mark the places where they found their pulse.

b. Questions

- (1) What are some activities that cause heart and lungs to speed up their work?

(Running, jumping, swimming, etc.)

- (2) What is a target heart rate zone?

(The target heart rate zone for children ages 6-12 years is $135-167 \pm 6$ beats per minute. This means that a child needs to get their pulse count for ten seconds to be either 23, 24, 25, 26, 27, or 28. These are the counts you hope to get while working in the gym.)

- (3) How long do you need to stay in the target zone?

(At least 15 minutes.)

- (4) How can you know that you are working in your target zone?

(I can pause for ten seconds--watch the clock--and count my pulse. I can then check the big chart to see the figure between 135 and 167 beats or I can remember that my ten second count must be 23, 24, 25, 26, 27, or 28 beats.)

- c. Use "Dr. Truso's Jet Powered Pedaller" comic book and filmstrip from American Heart Association.

3. Culmination

- a. Make a list of ways that first grade children can exercise vigorously. Have children check the ones they like to do--the ones they have done recently and the ones they do almost every day. Children may take these lists home and have mother and dad to verify them.
- b. Talk about the things children like focusing on the concept that sometimes children do not have the skills to do certain activities.

PROJECT HEARTY HEART

Hearty Heart ExerciseVocabulary Words

Questions: What can I do to get ready to exercise?
How do I get warmed up and how do I cool
down?

warmed up
cooled down

1. Introductory questions

- a. What is a good way to dress for play?

(Play clothes that are comfortable offer freedom to move, and are easy to care for.)

- b. What kind of shoes?

(Well-fitted, well-supporting play shoes that have good treads for safety. Sometimes being barefoot is good.)

- c. How can you get the body ready for vigorous activity?

(Get a warm feeling by having the blood circulating well and get the muscles stretched.)

2. Development

- a. Children talk about ways to get the heart going faster and the breathing rate to be increased.

- b. Review some of the tips Cathy offered to Rachel. Read aloud or tell the story showing the pictures from Running With Rachel.

- c. Children role play some ways to gradually work into for warming up the body.

(Walk, jog, jump, hop, leap, gallop, slide, skip, dance, stretch, handle balls.)

- d. Children make different stretched shapes to show ways to stretch their muscles.

- e. Children talk about some fun ways to cool off gradually after working vigorously.

(Animal walks, abdominal and back exercises, arm and shoulder girdle exercises, partner stunts, leg exercises, other things we do in the gymnasium.)

- f. Why is it important to cool down gradually?

(Our body organs have a better chance of returning to normal, we will feel better, it is a good health practice, and we are less likely to be injured.)

3. Culmination

- a. Children draw themselves or other children: warming up; warming down.
- b. Help children make a weekly chart recording the times during that week when they exercised. Place a check mark by the times they kept within the target zone for 15 minutes.
- c. Do activity page 7 from Color Me Red.

PROJECT HEARTY HEART

Hearty Heart ExerciseVocabulary Words

Questions: What are aerobic activities?
Which ones are good ones for me?
What hearty heart exercises will improve
my heart rate?
How can I monitor my target zone?

aerobic activities
monitor
high energy exercises

1. Introductory questions

a. What are aerobic activities?

(Those which promote heart health and cardiovascular fitness by using an amount of oxygen breathed in, equal to that used by the working muscles.)

b. What does that mean?

(I can continue to exercise for long periods of time if I work at an even pace--it means working with oxygen. I work steadily and easily taking in oxygen as it is needed by my muscles. If I gradually increase the amount of work then the heart and lungs are becoming more efficient and my body is able to do more work.)

c. What aerobic activities are good ones for first grade children?

(Running, jogging, dancing, skating, etc.)

2. Development

a. Children cut out pictures of aerobic activities to make a collage.

b. Teacher writes on board the activities that children suggest they like to do. These are high energy exercises.

c. Teacher discusses the target heart rate zone and helps children understand what they can do to monitor their target zone. During exercise the heart needs to beat 23-24-25-26-27 or 28 times in ten seconds. If the rate is lower than 23 children must work harder, if the rate is higher than 28 then children need to slow down some. They count their pulse for ten seconds mid-way of the exercise period to see if they are on target.

3. Culmination

a. Children role play the various hearty heart exercises they are doing in the gymnasium.

b. Children make drawings of some hearty heart things they would like to do in the gymnasium.

PROJECT HEARTY HEART

Prevention of Cardiovascular DiseaseVocabulary Words

Questions: What must I do to keep a hearty healthy heart?
 How do I keep from getting too tired, too hungry, and too worried?

lifestyles

1. Introductory questions

a. How can you tell when you feel good?

(Energy to run and play. Happy to be awake and ready for fun. Alert to things around me as toys, animals, books, friends, family.)

b. How do children act when they don't feel good?

(Unhappy, tired, fussy, fretful, not pleased by the usual routines.)

c. What are some things we can do everyday by ourselves to keep from being sick?

(Eat three balanced meals and nutritious snacks, get 8-10 hours of sleep, exercise every day and in the outdoors when possible, and learn how to relax.)

2. Development

a. Talk about good health practices: a happy meal time, dressing properly to play outside, going to bed, exercising every day. Children are encouraged to tell a short story based on the above themes such as: "We have a happy meal time at our house because"

(all of the family are present; the food is good, well-prepared, balanced, attractive; we take plenty of time to eat.)

OR

"When I go outside to play I"

(wear comfortable clothing; I'm dressed warmly with a jacket I can remove and put back on as soon as I quit running; I have on safe shoes to play in.)

OR

"Going to bed at my house"

(happens about the same time each night; is fun because I've had my bath and I'm relaxed and ready to sleep; means I tell my parents good night and go to my own nice bed.)

OR

"It's really important to exercise every day because"

(Keeps my muscles and bones strong; helps my heart and lungs work well; makes me feel good.)

- b. Draw or cut pictures from magazines to show what the child does every day as part of his routine.
- c. Talk about how lifestyles (habits) affect a healthy heart.

3. Culmination

- a. Children answer as teacher lists on the board:

"Things I do to keep from getting too tired."

(Get enough sleep; eat balanced meals; avoid junk foods; keep my muscles strong; run and play often; other.)

"What I do to keep from being too hungry."

(I have a good breakfast; eat all my lunch; other.)

"What I do to keep from being too worried."

(I talk to my parents about things; I play some, work some and rest some; I read and listen to good stories; other.)

- b. Use the life long ago and life now activity sheets to note differences in lifestyles (Color Me Red, p. 10-11).

PROJECT HEARTY HEART

Prevention of Cardiovascular DiseaseVocabulary Words

Questions: What are some signs I am sick?
When do I go to the doctor?

infection
disease
symptom

1. Introductory questions

- a. What was wrong when you were sick?

(Children describe common signs of infection as sore throat, fever, ear-ache, headache, coughing, etc.)

- b. Who decides when you need the doctor?

(Usually mother and dad when I'm not better right away.)

2. Development

- a. List on the board common signs of infection: sore throat, fever, ear-ache, persistent cough.

- b. List common signs of disease: pain, aches, loss of appetite, bleeding, change in behavior, weight loss.

(These are symptoms or signs that the body gives us to tell us it is fighting an infection or disease.)

- c. Role-play a visit to the doctor's office demonstrating the different ways the doctor checks to see what is wrong.

(Taking temperature; height and weight measurement; blood pressure; listening to heart and lungs with a stethoscope; throat culture; blood, urine, and sputum tests; x-rays; electrocardiogram.)

- d. Read Penny, The Medicine Maker, by Sherrie S. Epstein.

3. Culmination

- a. Invite a physician or physician's assistant to come and explain what happens during a routine physical examination and to demonstrate doctor's tools for a five to ten minute closing time.

PROJECT HEARTY HEART

Prevention of Cardiovascular DiseaseVocabulary Words

Questions: What are health problems of today's children?

obesity
over weight

Why is being over weight a serious problem?

1. Introductory questions

a. Do you see any over weight children on the playground? Other places?

b. How are such children likely to have problems?

(May not be as able to run and play well and miss out on improving their skill and having fun. It is well known that high blood pressure develops more frequently in adults who are over weight and there is a strong relationship between high blood pressure and the rate of increase of body weight. Similar trends have been observed in children. Obesity in childhood commonly leads to obesity in adult life.)

2. Development

a. Role play some children's choices:

. After a time of quiet activity do you choose to ride your bike, run with dad, play ball or stay inside and color pictures, watch television or read a book?

. For a snack, which of these would be a better choice: an apple, candy bar, cookie, pretzels, coca cola?

. In setting the table which items could very well be left off? Dishes, napkins, silverware, salt and pepper, sugar bowl.

. You live a mile from school and the only street you have to cross is the one that has a safety patrol person there. What is a hearty heart way to get to school?

. You and your friend are trying to list all the ways you can think of to keep from being over weight.

. You are the teacher and you are trying to help the children understand some things they will miss out on if they are too fat.

b. Use Hearty Heart helper, the inch pinch, and draw May and Bill and your pictures (Color Me Red, pgs. 18-19-20-21).

c. List on the board the things we can do to avoid being over weight.

- . Have a balanced diet.
- . Moderately restrict sugar, salt, and fat foods.
- . Practice good exercise habits.
- . Do 20 minutes of continuous exercise daily.
- . Enjoy active family activities as hiking, rope jumping, swimming and dancing.
- . Avoid tendencies to become too inactive such as too much television.

d. Children give individual answers to what they think the wise old owl means when he says "Exercise is wise" (American Heart Association chart).

3. Culmination

a. What are some serious health problems of today's children?

(Dr. Constance J. Hayes, Pediatric Cardiologist, says "drug use, accidents and trauma, and obesity are the most serious health problems of today's children." The causes of heart disease include a number of environmental factors, among which are diet and over weight and lack of exercise. Pictures showing children that appear over weight, too tired to play, eating candy or other concentrated food, pictured in bed sick may reinforce the importance of preventing these conditions.)

b. Children draw a healthy child at play.

PROJECT HEARTY HEART

Keeping a Healthy HeartVocabulary Words

Questions: What are risk factors?
What is high blood pressure?

risk factors
high blood pressure
hypertension
cholesterol

1. Introductory questions

a. What is meant by risk factors?

(Conditions and ways of behaving which make people upset and which increase a person's chances of developing cardiovascular disease later in life.)

b. Why is that bad?

(You may get to be real sick and even have a heart attack.)

c. What are some things that are bad for you and might hurt your heart?

(Smoking, being over weight, hypertension, lack of exercise, too much sugar and fatty foods, too much stress.)

2. Development

a. Your doctor will point out these things as risk factors: (List on the board) age; sex (gender); family history of cardiovascular disease; race; hypertension; smoking, over weight; high blood cholesterol; diet high in saturated fats; lack of exercise; diabetes; stress.

b. Discuss the above briefly pointing out that some cannot be changed.

(Age, sex, race, heredity.)

c. Hypertension (high blood pressure), one of the risk factors, is a condition in which an undue amount of pressure is placed on the walls of the arteries. Why is this bad?

(Blood vessels may break and circulation be interfered with, causing the heart to work harder.)

d. How can you tell what the blood pressure is?

(A special instrument measuring it.)

3. Culmination

a. Have blood pressure taken by a qualified person. Allow children to handle blood pressure equipment and explain how it works so as to reduce their fear of this routine procedure when it is done in the doctor's office.

PROJECT HEARTY HEART

Keeping a Hearty Heart

Question: Why is cigarette smoking harmful?

1. Introductory questions

- a. Do you think cigarette smoking is harmful? Why do you think so?

(Scientists have linked cigarette smoking to an increase in heart disease. Children who live in a household with smokers have more colds, ear infections, bronchitis, pneumonia, asthma and other respiratory illnesses than children who live with nonsmokers--from 40% to 100% increase.)

- b. Do you know what scientists have discovered about the effect of just one cigarette on the body?

(Children's answers accepted.)

2. Development

- a. Teacher lists four effects on the board: Just one cigarette speeds up your heart beat, increases your blood pressure, upsets the flow of blood and air in your lungs, causes a drop in the skin temperature of your fingers and toes.
- b. Teacher uses DE-21 experiment (American Heart Association) to show the effect of smoking on the body.
- c. Children use the coloring book, "The Story of a Cigarette."

3. Culmination

- a. Children think of reasons why they should not smoke. Teacher lists their reasons on the board.

(Smoking is not good for your heart, the heart beat is speeded up, your hands and your breath smells bad, you might cause a fire.)

- b. Children draw a picture showing bad effects of smoking.

PROJECT HEARTY HEART

Keeping a Hearty HeartVocabulary Words

Question: How can I recognize stress?

stress
tension
relaxation
over-stress

1. Introductory questions

- a. What does stress mean? Do we ever need it? How is it different from over-stress?

(When we feel rushed, worried or not sure of what we are doing we may feel stress. Too much can be bad.)

- b. What are some things that cause us to be over-stressed?

(Working too hard and too long without a break. Too much noise and confusion. Too many problems to be solved, unsanitary living conditions.)

- c. How can stress be a good thing?

(We need to be motivated to get tasks done, even our bones and muscles must receive suitable stress for us to grow and develop strong capable bodies. We need to learn how to plan and work and play hard without wasting time. Sometimes we need to relax.)

2. Development

- a. Discuss how stress can be a risk factor.

(Children's answers may be tension, strain, worry, etc. Stress is physical or mental tension that is part of every day living. Stress is caused when a person works too hard without relaxing or has problems that are too hard to be solved.)

- b. What are some things first graders can do to reduce stress? (Practice relaxation techniques.)

- . Take slow deep breaths.
- . Play a short noisy game.
- . Tighten muscles real hard and then let them get soft again as you relax.
- . Move some fun ways to music.
- . Practice self-massage.
- . Think how they could clean up the areas they live in to make them "feel better" at school, home, playground.

- c. Can we practice any of these things now?

d. Take a simple stress control test:

- . I have a job or other work to do that I enjoy.
- . I have close friends or relatives I can talk to about my problems.
- . I participate in group activities with my family and others.
- . I know when to find a quiet time to get control of myself.
- . I try to be neat and not litter.

3. Culmination

- a. Children list things that cause stress for them at home, at school, at play.
- b. Children list some ways to cope with their stresses.
- c. Do live happy activities from Color Me Red, p. 25.
- d. Children cut and draw pictures showing clutter, unsanitary conditions, and compare with pictures of neat orderly safe areas.

PROJECT HEARTY HEART

Help for the Hurting HeartVocabulary Words

Question: What emergency procedure should I be able to follow?

cardiopulmonary
resuscitation
emergency

1. Introductory questions

- a. What would you do if your mother, daddy, grandparent or other person was in an accident or became suddenly ill?

(Get help, call the doctor, some may not know.)

- b. Why is it important that you think and make a good response rather than just being scared and cry?

(Because it may be an emergency and I'm the only one to get some help.)

2. Development

- a. Describe some situations that could occur in children's lives.

(Someone could be unconscious and not breathing, a person could have trouble getting their breath, someone may say their chest hurts and they are weak and sweating, there may be no heart beat or pulse.)

- b. What are some things to think about and do in case of an emergency?

(Discuss good practices as: do not let the person move, stay with them and reassure them, if no one else is there report the situation to an adult, cover them with a blanket.)

Role-play what to do in various emergency situations including what they would say to the victims; how they would get help; who they would go to for help.

Children practice making a phone call to an adult about an accident or illness making sure to include: their name, the victim's name, victim's location, observed symptoms and what happened, phone number they are calling from.

3. Culmination

- a. Have some qualified person demonstrate mouth-to-mouth resuscitation. Each child can practice at his own level of ability. This activity is primarily to raise the children's awareness of the procedure.

- b. Be sure children know what basic emergencies consist of. (Person not breathing, too weak to respond, signs of bleeding.)

PROJECT HEARTY HEART

Hearty Heart NutritionVocabulary Words

Question: What makes a balanced meal?

vitamins
minerals
proteins
energy foods
variety

1. Introductory questions

a. Why do we eat?

(Food is fuel for the body like gas is fuel for the car. We need energy to grow and to work and play.)

b. Does it matter what kind of food we eat?

(Children's answers.)

c. What kind of food do you think we should eat?

(Energy foods like bread, cereals, rice, tortillas; vitamins and minerals from fruits and vegetables, especially lettuce, spinach, carrots, oranges; milk products; protein foods like fish, meat, nuts, beans.)

2. Development

a. View filmstrip HEA 306 "The Need for Healthy Habits - Healthy Foods" (10 minutes).

b. Discuss what Pooh, Tigger, Rabbit, Piglet, Eeyore, and Christopher Robin have to say about good eating.

c. Children place pictures of food into four basic food groups.

(Pictures available from Learning Resource Lab - HEA 137-ACD6. Display Dairy Council's Every Day Eat the 3-2-4-4 Way.)

d. Why do we need to get different kinds of foods each day?

(To help insure getting a balanced diet since vitamins and minerals appear in different amounts in different foods. Some foods are energy giving and others provide muscle building and bone building materials.)

e. Why is it good to have a variety of foods?

(To get a balanced diet to secure a balance of nutrition and because it makes for an enjoyable meal time.)

- f. What are some guidelines for a balanced meal?

(See chart and note: 3 servings of dairy foods; 2 servings of meat, fish or poultry; 4 servings of fruits and vegetables; 4 servings of bread and cereal group.)

- g. Focus on the heart being effected when food intake is out of balance especially as regards salt, fat and too many calories.

3. Culmination

- a. Use the Mood for Food activity card and have children fill their plate with food from the four food groups to make a balanced meal. They could use the cut out food pictures or draw food on their plate.
- b. Talk about what they will need to eat at the other two meal times to get a balanced meal for the day.
- c. Use the I.C.D.E. posters to reinforce concepts already presented (American Heart Association).
- d. Children use Take Care of Your Heart activities book (American Heart Association).

PROJECT HEARTY HEART

Hearty Heart NutritionVocabulary Words

Question: Why is breakfast so important?

nutritious
food groups

1. Introductory questions

a. Raise your hand if you ate breakfast this morning. Do you eat breakfast nearly always?

b. Why do you think it is a good thing to eat breakfast?

(Your body has been a long time without food, you need energy to start the day, your body is growing and breakfast foods provide some very necessary growing materials.)

c. How might you feel if you skipped breakfast?

2. Development

a. Children name things they like for breakfast and teacher lists them on the board. Children tell teacher foods that are not usually thought of as breakfast foods but good ones to have such as a bowl of hot soup, hot rice, a piece of chicken, some cheese. Children have teacher put a check by those foods that are especially nutritious. (Some effort needs to be made to limit the inclusion of sugar cereals and other sweets.)

b. View the filmstrip "Breakfast Gives You Bounce" (7 minutes).

c. Discuss the film stressing what tends to happen when you miss breakfast.

d. Do Kellogg activity 5-6.

3. Culmination

a. Use Kellogg activity 3, planning a balanced breakfast from at least three of the four food groups.

b. Discuss good breakfast habits.

(Eat three of the four food groups; have enough time to eat breakfast; enjoy a time with some or all of the family; tell mother or dad something helpful you're going to try and do today.)

c. Use Dandelion* activity book to reinforce concepts from this lesson and also Lesson XIII.

*Stoia, Rose, Dandelion, The Lion Who Lost His Roar.

PROJECT HEARTY HEART

Hearty Heart NutritionVocabulary Words

Questions: What makes a good school lunch?
Why are fruits, vegetables, whole grains,
low-fat milk products and lean meats
better for you than sugar, salt, and
saturated fats?

empty calories
fiber foods

1. Introductory questions

- a. What new foods have you tried in the lunch room?

(Children's answers.)

- b. What things are included in the school lunch that is especially good for you?

(Milk, cheese, vegetables, fruits, bread, etc.)

- c. How can first graders help our school have a good lunch program?

(Children's answers; eating all our food, being careful to not drop or throw food, making suggestions to the lunch room committee about including some nutritious foods, being courteous to others and thanking lunch room workers.)

2. Development

- a. Review why low fat, low salt, low sugar and quality fiber foods are especially beneficial to a healthy heart.

- b. Form children in committees of three or four and have them make suggestions for improving the school lunch.

(Some suggestions they may make could include: offer skim milk and whole milk; use fresh fruits for dessert; have some vegetables served raw; have whole wheat rolls, bread, etc.; put chicken, turkey, fish on menu more often; allow children to put their own dressing on salads; cut down on the amount of sugar and salt used in cooking; bake rather than fry chicken and fish; do not put salt and sugar on the table.)

- c. Plan lunch menus for the school lunchroom using some of the suggestions from the children's "Help Your Heart Cookbook" (American Heart Association). Also use the Dairy Council's "Every Day Eat the 3-2-4-4 Way."

d. Talk about foods that are not good for lunch or any other meal.

(1. Sugar is sweet but not so neat: causes cavities and tooth decay; causes over weight; provides empty calories--no vitamins, minerals, or proteins; doesn't stay in your stomach very long; you keep eating because you are hungry. 2. Foods that are fried and fatty besides make you feel bad and sometimes sad: french fries, potato chips, etc., are more difficult to digest; contribute to over weight).

3. Culmination

a. Have children try some poetry lines expressing ideas about a good lunch.

(To be one of the bunch, have a good lunch.)

b. Do what What Am I activity from Color Me Red, page 17.

PROJECT HEARTY HEART

Hearty Heart NutritionVocabulary Words

Question: What are good and poor snacks?

snack
meal

1. Introductory questions

- a. Do you know the difference between a snack and a meal?

(A snack is a small portion of food to provide a feeling of energy and well-being whereas a meal consists of helpings from the food groups that are more substantial and usually larger. Snacks can be nutritional and contribute to the daily food requirements for children.)

- b. What snacks do you like that are good for you?

(List on board: raw fruits; raw vegetables; cheese cubes; milk and fruit drinks; peanuts, other nuts; hard boiled eggs; dried fruits; whole wheat crackers; peanut butter.)

2. Development

- a. View filmstrip "Smart Snacks," Walt Disney HEA 331.
- b. Who gets in trouble in the filmstrip? What does he like to eat? How does he get out of trouble?
- c. Try one of the snack suggestions from the children's "Help Your Heart Cookbook" at home and tell us about it the next class time.
- d. Discuss how the choice of snacks affects the heart.
- e. Plan a tasting party for the next class deciding who will bring what snacks for all to have a taste. Offerings may include raw carrots, cauliflower, turnip, cucumber, pepper, radishes, snow peas, etc.; raw fruits available dried fruits as peaches, apples, prunes, raisins, etc.; bits of cheese, different kinds of nuts.

3. Culmination

- a. Children write their names on their cookbook and make three lists on the book pages.

(Foods I like for breakfast; snacks that are good for me; what makes a good lunch.)

- b. Talk about ways to help our heart.

(Play hard—bike, swim, run, dance, jump rope; eat good food, be thin, live happy.)

PART III

PROJECT HEARTY HEART

A RESEARCH REPORT

by

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PROJECT HEARTY HEART: A CARDIOVASCULAR FITNESS
PROGRAM FOR FIRST GRADE CHILDREN

A Research Report

Introduction

The old myth that endurance type activities are injurious to the healthy heart of a young child, that children cannot tolerate endurance activity has been long rejected by physicians and educators. The present lack of planned aerobic activity programs for young children in the schools may be due to practical considerations. Endurance activities for young children take a great amount of time. Program effectiveness is difficult to evaluate because changes in cardiovascular function occur slowly and in small increments. Some argue that such activities are too specialized, require inordinate effort, and are not suited to the interest of young children.

On the other hand a few advocates view development of habits of aerobic exercise as essential for proper health and development. Those proponents believe that educational and physical activity programs have the potential to influence cardiac health if provided systematically and at an early age.

Educational and professional groups have asserted their interest in cardiovascular fitness for young children in recent years. When the Alliance for Health, Physical Education, Recreation and Dance published the Health Related Fitness Test in 1980, norms appeared for children as young as five years of age for the mile run and the nine minute run (AAHPERD, 1980). Those norms signaled a supportive position of the AAHPERD for aerobic exercise for young children.

A number of projects have promoted cardiovascular health and fitness programs for elementary school children. Attention has recently been drawn to those projects in a special issue of Health Education. Those model cardiovascular fitness projects have proposed a multifocused approach to developing good life habits of aerobic exercise, proper nutrition, and good health practices.

The question of why children need cardiovascular fitness activities starting at five or six years of age raises a topic of central importance. Cardiovascular disease is a degenerative disease which is associated with certain life styles and habits. Over the past fifteen to twenty years there has been a concerted effort to identify individuals who are susceptible to premature development of cardiovascular heart disease. Primary candidates for cardiovascular disease have identifiable risk factors such as hypertension, elevated blood lipids (serum cholesterol and triglycerides), electrocardiographic abnormalities during rest and exercise, family history of heart disease, obesity, and evidence of inadequate physical activity.

Heart disease has been described as a pediatric problem, because risk factors appear to be quite common among the young. Boyer reported that sixty-three percent of children eight to twelve years of age had one or more cardiovascular risk factors. Risk factors included were elevated levels of serum cholesterol and triglycerides, obesity, hypertension, inadequate nutrition, and smoking (Boyer, 1974, p. 784).

Although the effects of exercise for improvement of cardiovascular health are difficult to establish, exercise participants have reported some remarkable changes in their living habits and attitudes. With elevated exercise patterns subjects spontaneously change habits of recreation, eating, sleeping, and smoking. They report increased energy, reduction of anxiety, and feelings of

well being (Boyer, 1974, p. 785). When children engage in aerobic exercise programs parents and teachers have reported similar changes in attitude and behavior (Warmups, p. 10).

It appears that cardiovascular risk factors are present in children and that the typical increase with age may be due to life habits. Data also suggest that even moderately active children seldom participate in physical activity of intensity high enough to promote cardiovascular health (Gilliam and others, 1982, p. 105).

Model programs are needed which introduce aerobic exercise and related heart health information to children as soon as they enter school. The Hearty Heart Curriculum introduces such a program.

Development of a Cardiovascular Fitness Program

The purpose of Project Hearty Heart was to develop and field test a cardiovascular fitness program specifically for first grade children. The program included physical activity lessons and concurrent instruction in cardiovascular health knowledge.

Activity lessons were designed to provide a variety of high intensity endurance activities for first grade children. Thirty-two lessons lasting thirty minutes each were developed. Goals were established in the areas of cardiovascular endurance and motor function (skill, strength, flexibility, and balance) to be achieved during the activity program. Endurance and motor function goals both were included to achieve a more rounded physical education experience within a cardiovascular fitness approach.

Activity lessons were prepared in three phases: introduction, development, and culmination. The introduction was designed to get children psychologically and physically ready. The development phase was intended to encourage work with high intensity activity for a continuous period of fifteen to twenty

minutes. Activities were to be intense enough to raise the heart rate to between 65-80 percent of its maximum and to maintain that rate for increasing time periods so as to obtain a training effect. The culmination phase was to reinforce concepts presented and to provide a cool-down time. That time was also used for work on strength, flexibility, and balance.

Sixteen cardiovascular health knowledge lessons were designed to be used by the classroom teacher. Seven topics were included in content:

1. Overview of the cardiovascular system
2. Physiology of the cardiovascular system
3. Hearty Heart exercise
4. Prevention of cardiovascular disease
5. Reducing risk factors
6. Cardiopulmonary resuscitation
7. Hearty Heart nutrition

Lessons were reviewed by a health educator familiar with the content area and with the age group for whom the program was intended. Comments from teachers and other consultants were incorporated in revision of the lessons.

Procedure

The cardiovascular fitness curriculum was tested with one class of twenty-five first grade children at Model School, Richmond, Kentucky. A second class of twenty-five first graders from Model School served as a control group. The design of the study is shown in Table 1.

The field test group participated in thirty-two activity lessons and sixteen health knowledge lessons. Activity lessons were taught by a physical education specialist twice a week for thirty minutes over a period of sixteen weeks. The sixteen health lessons were taught by the classroom teacher once a week for a period of thirty minutes each.

TABLE 1
PROJECT HEARTY HEART
DESIGN OF STUDY

Subjects	Treatment	Pretest-Posttest Measure
<u>Test Group</u>		
First grade children (N = 25)	32 Hearty Heart Activity Lessons (30 minutes each)	Mile Run Test Sit-Up Test Triceps Fat Test Heart Knowledge Test
	16 Hearty Heart Fitness Lessons (30 minutes each)	
<u>Control</u>		
First grade children (N = 25)	48 Physical Education Lessons (20 minutes each)	Mile Run Test Sit-Up Test Tricep Fat Test Heart Knowledge Test

During the first activity lesson, children were taught to monitor their heart rate and to determine if it was in the required "target zone." Children counted their pulse for ten seconds and consulted a chart to determine if their heart rate following activity was between 135-168 beats per minute. Children were also taught to pace themselves in order to maintain the heart rate within the target zone for increasing periods of time.

The control group received their regular physical education program four days a week for twenty minutes each lesson. The physical education specialist employed by Model School taught lessons which were basically games oriented. Any instruction in cardiovascular fitness in the physical education classes or in the classroom was incidental. Teachers were asked to follow their lesson content as usual. That plan did not include any emphasis on cardiovascular fitness.

Observations were made to establish whether or not children in the

experimental and control groups were working long enough and hard enough to attain a training effect. Those observations helped to establish differences between the control and experimental groups in activity intensity and duration.

Observations were spaced over the first sixteen lessons. The duration and intensity of activity during four lessons for the experimental group and six lessons for the control group (two hours for each group) were recorded. Observational forms allowed recording of the children's involvement each fifteen seconds. Categories included waiting, listening, and activity. If children were active, intensity of activity was recorded as low, moderate, or high. The criteria for tabulation within any category was to determine if the majority of children were responding in the same way. Within each five minute time cycle, four minutes were allotted for observation. During the fifth minute two or three children were selected and heart rates were monitored for ten seconds. Children in both groups were warned that their activity might be interrupted to count heart rates.

Children in the ~~experimental and control groups~~ were tested before and after the sixteen week instructional period. Three items from the AAHPERD Health Related Fitness Test were used--the mile run, modified sit-ups, and tricep's skinfold fat. The mile run test was given to estimate cardiovascular fitness (AAHPER, 1980). All children received practice and instruction before taking the test. Children were taught pacing as they became familiar with the course and test procedures. Time required to complete the mile run was recorded for each child.

The Superheart Cardiovascular Health Knowledge Test was administered to evaluate knowledge of heart fitness (1981). The test was developed and used extensively with children in the Superheart Project. The primary grade test

consisted of fifty items, administered to two sittings. Questions were read by the teachers and children marked their responses on an answer sheet.

The principle analysis of data involved a comparison of the experimental and control groups. Changes in knowledge and cardiovascular fitness were examined for each group. Comparisons were made between scores of the Model School children and the AAHPER Mile Run Test.

Results

The mile run. The average improvement for children in the experimental group was 1.13 minutes, and for the control group .17 minutes (Table 2). A t-test for related samples indicated that the experimental group changed significantly ($p = .05$) from pre- to posttest.

TABLE 2
IMPROVEMENT ON THE MILE RUN TEST
FIRST GRADE CHILDREN

Subjects	Pretest		Posttest		Difference	
	$\bar{X}$ (min.)	SD	$\bar{X}$ (min.)	SD	$\bar{X}$ (diff.)	SD
<u>Experimental</u>						
Girls (N = 11)	13.99	1.51	12.12	1.62	1.87	2.64
Boys (N = 13)	11.51	2.39	11.02	1.97	.49	1.41
Total (N = 24)	12.64	2.26	11.52	1.87	1.13*	2.13
<u>Control</u>						
Girls (N = 10)	11.81	1.08	11.72	1.10	.09	1.12
Boys (N = 13)	11.30	1.42	10.99	1.59	.31	.85
Total (N = 23)	11.59	1.17	11.30	1.42	.17	1.03

*Difference significant at .05 level with $df = 23$.

The experimental group of girls improved by 1.87 minutes and the boys by .49 minutes. However improvements were not significant at the .05 level when t-tests for independent samples were used. Boys in the experimental

group ran faster than the girls by an average of over a minute on both pre- and posttest. Differences were not significant at the .05 level.

The table below shows running times at the 50th percentile for the subjects when compared to the AAHPERD norms. A comparison of median scores of the Model children with the median scores on the national average shows much similarity. The girls in the control group were a little ahead of the norm on pre- and posttest performance.

TABLE 3
COMPARISON OF MODEL SCHOOL CHILDREN WITH THE
NATIONAL NORM ON THE ONE MILE RUN

Groups		Mile Run Time at Fiftieth Percentile	
		Girls	Boys
National Norms (7 years)		12.30	11.25
National Norms (6 years)		13.48	12.29
Control (6 years)	Pretest	11.83	11.18
	Posttest	11.64	11.50
Experimental (6 years)	Pretest	13.57	11.25
	Posttest	12.40	12.27

Other Measures of Health Related Fitness. Measures of triceps skinfold fat did not change significantly from pretest to posttest for either the experimental or control groups (Table 4). On the one minute sit-up test the experimental group improved slightly but the increase was not significant at the .05 level (Table 5).

TABLE 4
TRICEPS SKINFOLD TEST
FIRST GRADE CHILDREN

Subjects	Pretest		Posttest		Difference	
	$\bar{X}$ (mm)	SD	$\bar{X}$ (mm)	SD	$\bar{X}$ (mm)	SD
Control	10.04	2.73	9.31	4.13	-.35	2.61
Experimental	10.12	3.53	9.77	3.39	-.35	1.90

TABLE 5
AAHPERD SIT-UP TEST
FIRST GRADE CHILDREN

Subjects	Pretest		Posttest		Difference	
	$\bar{X}$	SD	$\bar{X}$	SD	$\bar{X}$	SD
Control (N = 25)	10.88	7.08	11.32	6.69	.44	6.66
Experimental (N = 25)	11.48	6.27	12.64	7.06	1.16	3.43

Measures are in number of sit-ups in one minute.

Although subcutaneous fat and abdominal muscle strength/endurance could conceivably be effected by aerobic activity changes were not expected with a program of such short duration. Children in the experimental group were not specifically conditioned with abdominal endurance exercises; however, incidental activities of that type were included in their program.

Heart health knowledge. The "Superheart Primary Test of Cardiovascular Knowledge" was administered to the control and the experimental groups. The average number of correct responses on the fifty item test is shown in Table 6.

TABLE 6
KNOWLEDGE OF CARDIOVASCULAR HEALTH
FIRST GRADE CHILDREN

Groups	Pretest		Posttest		Difference	
	$\bar{X}$	SD	$\bar{X}$	SD	$\bar{X}$	SD
Control (N = 24)	40.2	3.75	43.3	3.14	3.2*	3.86
Experimental (N = 24)	35.7	6.48	41.2	4.82	5.1*	5.50

*Significant at .05 with 23 df.

The Hearty Heart experimental and control group each improved significantly at the .05 level when t-tests for related samples were used. The control group scored significantly higher than did the experimental group on the pretest ($t = 3.26$ with $df = 23$). The difference between the groups was not significant on the posttest.

The posttest knowledge score for the children in the Hearty Heart group are similar to the pretest score from the same test administered to primary grade children in the Superheart Project. The Superheart intervention included three forty minute activity classes and two classroom lessons per week for seven months (Bellardini, 1978-79). Posttest for the Superheart control group ($N = 22$) was 40.1 and for the experimental group 43.6 ($N = 38$).

Activity, Duration and Intensity

Observations of activity intensity and duration were made of the experimental and control groups during a total of two hours of activity. Categories for classifying behavior included:

1. waiting to receive instructions or directions.
2. listening to the teacher.
3. participating in activity.

A judgement was made every fifteen seconds as to the activity intensity of the majority of the class. The intensity of the activity level was classified as low, moderate, or high. Low level activity included stretching, sitting, or standing with little continuous axial movement. Moderate level activity included rapid walking or running at moderate speed, playing "it games" or games of chase. High level activity included speed running, and continuous activities that allowed vigorous movement. During every five minute cycle the activity involvement of the class was recorded for four minutes. During the fifth minute several children were selected at random and heart rate was monitored for ten seconds. The heart rate count was multiplied by six to estimate beats per minute. Two or three children were monitored within the one minute period.

During the physical education periods the control group spent more time waiting for the teacher (12%) than did the experimental group (less than .05%). The experimental group was in activity during 87% of the fifteen second time frames and 75% of the time they were participating at a high or moderate activity level. The control group was active 74% of the time with the activity level more evenly divided between low, moderate, and high intensity activity (Table 7).

TABLE 7

A COMPARISON OF A HEARTY HEART CLASS AND A CONTROL CLASS
PERCENTAGE OF TIME FRAMES SPENT IN PHYSICAL ACTIVITY

Group	Wait- ing	Listen- ing	Activity Level			Average Heart Rate/min.
			Low	Moderate	High	
Experimental	0.0%*	13.0%	12.0%	53.0%	22.0%	162
Control	12.0%	11.0%	23.0%	20.0%	34.0%	144

*Less than .05%.

The important difference between the experimental and control groups was the duration of activity at the moderate activity level. The experimental group was continuously active for periods of fifteen to twenty minutes of slow jogging and sustained activity. The activity of the control group was characterized by stops and starts. "It" or chase games tended to encourage spurts of activity. Their activity tended to be "all out" and could be sustained only for a few seconds. Thus, for the control group, high intensity activity frames were interspersed more often with low activity frames or with listening periods.

The average heart rate of the experimental children was 162 beats per minute which is high enough to promote a training effect if sustained. The heart rate of control children averaged 144 beats per minute which indicates moderate physical exertion.

Gilliam and others (1982) monitored heart rates of six and seven year old children electronically and reported that children seldom attained a heart rate greater than 160 beats per minute. Their aerobic program was conducted during an eight month period, four days a week, 25 minutes per session. Mean heart rates during exercise were 136 and 156 beats per minute for a control and experimental group respectively (Gilliam and others, p. 100). Data for the Harty Heart children was quite similar.

The Harty Heart activity program was distinctly different from the regular physical program in content and emphasis on vigorous, continuous activity. It took a persistent effort by the teacher to keep the children motivated and interested in sustaining activity for fifteen to twenty minutes. The children were enthusiastic and eager participants in the program. They were pleased with their accomplishments in the activities and in their ability to run a mile without stopping. Several parents reported their delight and

amazement at their child's accomplishment.

Conclusion

Improvements in running time and in heart knowledge were small but within the expected range of improvement for the experimental group. Teachers should realize that health benefits due to aerobic exercise and modification in life habits occur slowly. The cumulative effect may be manifest in years to come. Possible benefits lie beyond our immediate capacity to evaluate, but so do most of the other benefits of early education. The introduction of aerobic activity, along with encouragement toward development of good life habits, may be an important inclusion in the education program of young children.

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